Roundtable Three

Packaging Waste: Whose Responsibility Is It Anyway?

November 6, 1998

A Final Report

Conducted by
The Cornell Waste Management Institute

Sponsored by
The U.S. Environmental Protection Agency Region 2

On behalf of The New York City Department of Sanitation

April, 1999

CORNELL WASTE MANAGEMENT INSTITUTE

Center for the Environment 100 Rice Hall Cornell University Ithaca, NY 14853-5601 (607) 255-1187
email: cwmi@cornell.edu internet: www.cfe.cornell.edu/wmi/

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ACKNOWLEDGEMENTS

The success of this New York City Roundtable on Packaging Wastes was largely due to the enthusiastic participation of the attendees who shared their knowledge and ideas. Those who came from as far as Germany or as near as NYC all provided perspectives that are useful in considering reduction of packaging in the NYC waste stream.

The commitment of the New York City Department of Sanitation to waste reduction and in particular the efforts of Dave Kleckner and Robert Lange in the Bureau of Waste Prevention, Reuse and Recycling, were key to the development and implementation of this Roundtable. Without the assistance of EPA, Region 2 and the enthusiastic support of John Filippelli and Lorraine Graves, the Roundtable would not have been possible.

Many thanks to all involved – Ellen Z. Harrison, Director

The Cornell Waste Management Institute (CWMI) was established in 1987. CWMI addresses the environmental and social issues associated with waste management by focusing University resources and capabilities on this pressing economic, environmental, and political issue. Through research, outreach, and teaching activities, CWMI staff and affiliated researchers and educators work to develop technical solutions to waste management problems and to address broader issues of waste generation and composition, waste reduction, risk management, environmental equity, and public decision-making. The focus for such work is on multi-disciplinary projects that integrate research and outreach. Working in collaboration with Cornell faculty and students from many departments and with cooperators in both the public and private sectors, issues ranging from management of sewage sludges to waste-prevention are the focus of on-going programs.

A copy of this report can be downloaded from the CWMI web site
www.cfe.cornell.edu/wmi or by contacting CWMI.

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BACKGROUND

A "Plan to Phase Out The Fresh Kills Landfill" was issued by a Task Force established by New York State Governor George Pataki and New York City Mayor Rudolph Giuliani during November of 1996. Central to this plan are strategies intended to maximize the amount of New York City waste that is prevented and recycled, in order to minimize the need to export waste when the Fresh Kills landfill on Staten Island closes at the end of 2001.

The Fresh Kills landfill has long been an inexpensive solid waste disposal option for the City. However, the City's reliance on this landfill is being dramatically reduced in anticipation of the scheduled closure. Concurrently, New York City is increasing its reliance on waste reduction initiatives, recycling, composting, and out-of-City disposal.

The US Environmental Protection Agency (EPA) participated in the Task Force established by the Governor and Mayor. In the Task Force Plan, EPA offered to fund Roundtable meetings with the City to address waste reduction issues. The Task Force recommended and the City agreed that the Roundtable meetings would include representatives of various City, State, local, and private organizations who have studied or implemented waste reduction strategies and who could share information and experiences at these meetings.

The New York City Department of Sanitation (DOS), Bureau of Waste Prevention, Reuse and Recycling (BWPRR) proposed to EPA Region 2 that Roundtables be convened to discuss various waste reduction strategies. DOS provided EPA Region 2 with a proposal setting forth the respective roles of the two agencies. EPA agreed to this arrangement, and subsequently provided funding for the Cornell Waste Management Institute (CWMI) to provide the needed services. These included providing input regarding agendas and selection of invited participants, sending out invitations and following up as necessary to recruit participants, providing meeting space and refreshments, moderating the sessions, writing summary reports, and related services. CWMI and DOS worked closely together in developing agendas and selecting participants.

The first Roundtable was held November 14, 1997 at the offices of Cornell Cooperative Extension in New York City. The "New York City Materials Exchange Roundtable" provided a forum for materials exchange program sponsors from throughout the nation, including New York City program operators and interested parties. The purpose was to discuss issues critical to the success of materials exchange operations that were also being tackled by the new NY Wa$teMatch Program launched by DOS in April of 1997. A report is available from the Cornell Waste Management Institute which summarizes the findings of that Roundtable (access is available through the World Wide Web at **www.cfe.cornell.edu/wmi/WastRed/MatlExch.html**).

The second Roundtable, "The Potential for Composting Collected Wastes to Reduce the NYC Solid Waste Stream," was convened April 3, 1998 in New York City. This Roundtable gathered experts from the United States, Canada, Germany, and the Netherlands along with representatives of local organizations, to explore the possibilities of

composting collected wastes. The focus was on large-scale composting and the constraints and issues surrounding composting in a dense urban setting. A report is available from the Cornell Waste Management Institute which summarizes the findings (access is available through the World Wide Web at **www.cfe.cornell.edu/wmi/WastRed/NYCRT2.html**).

The third Roundtable, "Packaging Waste: Who's Responsibility is it Anyway?," was convened on November 6, 1998 at EPA Region 2 in New York City. This Roundtable, upon which this summary report is based, was held to consider extended producer responsibility and how that might apply to reducing packaging wastes in New York City. Experts from government, business and organizations in the United States, the United Kingdom, Germany, Canada and the Netherlands were convened to participate. Invitees included New York State agency representatives as well as representatives from the Citywide Recycling Advisory Board and the Solid Waste Advisory Boards from each Borough of the city. A list of invitees and attendees can be found in the appendices to this report.

INTRODUCTION

The session began with welcoming remarks by Lorraine Graves on behalf of US EPA Region 2 and David Kleckner from the New York City Department of Sanitation (DOS), Bureau of Waste Prevention, Reuse and Recycling. The contributions were recognized of Colton Seale and Carole Bell from Science Applications International Corporation (SAIC) who, in their capacity as consultants to DOS, provided assistance in developing the Roundtable.

DOS Deputy Commissioner Martha Hirst provided an introduction to the waste management issues facing the City with the closing of Fresh Kills. She noted that the Roundtable was helping DOS fulfill its role in bringing together diverse groups in non-adversarial forums to discuss options to reduce and manage the waste generated in the City. She reminded participants that DOS is responsible for managing the materials generated. It is the City Council and others in the political arena that determine policy.

Packaging is a large and visible component of the municipal waste stream and was therefore selected as the topic of this Roundtable. Over one third of the municipal solid wastes managed by municipalities is comprised of packaging and there appear to be opportunities for reduction. Packaging is also a significant cost to consumers. Packaging costs on a $5 item generally range from 20 to 50 cents. However, packaging serves many functions including efficient and safe transportation, protection of product and integrity, product delivery and dosing, and product information. Producers operate in an economic marketplace in which they must meet consumer demands for quality and low cost, while competing against other brand names for product recognition and shelf space.

The questions which the Roundtable addressed are:

- How can U.S. industry, government, NGOs, and other interested parties work together to use the European, Canadian and Asian extended producer responsibility (EPR) regulations and programs to influence packaging waste generation and management in New York City and the U.S.?

- What lessons can we learn from their experiences to apply the concepts of EPR in the U.S. to minimize packaging waste and increase the recycling and recyclability of packaging?

Ellen Harrison, Director of the Cornell Waste Management Institute (CWMI), continued the introduction. In NYC and many locales, the municipal government is responsible for the management of residentially generated solid wastes. In this system, little incentive exists for manufacturers or consumers to reduce packaging waste. The purpose of the Roundtable is to focus on packaging waste and the balance of responsibilities among manufacturers, distributors, retailers, consumers and government. The goal of such efforts is to reduce the amount of packaging waste that is generated and to increase the amounts recycled and the recycled content. Internalizing waste management costs is seen as a key element in design and distribution choices.

What is Extended Producer Responsibility?

> EPR is the principle that producers bear a degree of responsibility for the environmental impacts of their products throughout the products' life cycles, including upstream impacts arising from the choice of materials, and from the manufacturing process and downstream impacts from the use and disposal of the products.[1]

EPR covers an array of concepts, from general environmental stewardship to mandatory takeback programs. Moreover, the general concept of EPR can be used to cover almost any product, from chemicals, to packaging, to consumer products.

For the purposes of the Roundtable, EPR includes voluntary or government mandated or government/industry shared responsibility programs through which industry pays for a portion of the collection and recycling of packaging materials and which in some way seek to encourage the reduction of packaging waste.

The goals of EPR packaging programs are to reduce the quantity and/or toxicity of packaging while maintaining economic efficiency.

New York City Packaging Waste Management

As part of an effort to reduce waste generation, New York City, through its DOS Bureau of Waste Prevention, Reuse and Recycling, has undertaken initiatives focused on packaging wastes. Source reduction is the preferred option since it reduces not only ultimate disposal,

[1] Davis, Gary and Cynthia Wilt, 1995. "Extended Producer Responsibility: A New Principle for a New Generation of Pollution Prevention." Center for Clean Products and Clean Technologies, U. Tenn.

but also avoids transportation and management costs associated with recycling. Marjorie Clarke, Center for Applied Studies of the Environment of the City University of New York, pointed out that source reduction makes great economic sense to the City. The Department of Sanitation oversees waste prevention initiatives that include promoting packaging reduction in the private sector (i.e., NYC WasteLe$$ technical assistance and outreach to businesses and institutions, and NY Wa$teMatch materials exchange program), the public sector (i.e., NY CitySen$e technical assistance and outreach to City government agencies), and the general public (i.e., by working through the business community, and through distribution of public education materials).

Recycling is mandatory in New York City for all residents, businesses, and institutions including government agencies. Businesses are required to recycle through their private carters. The Department of Sanitation collects recyclables from all households, including apartment buildings, and from non-profit institutions and public agencies. The materials collected by Sanitation include newspaper, magazines, catalogs, corrugated cardboard, phone books and other mixed paper, metal cans and foil, glass bottles and jars, plastic bottles and jugs, milk and juice cartons, drink boxes, and household metal (items made of more than 50% metal such as appliances and furniture). These collected materials are delivered to private contractors who are required to process and market them for recycling. Edward Campbell, Empire State Development, indicated that increasing recycling in NYC will be very difficult at this stage as more of the major waste management companies are actually getting out of the recycling business and focusing on hauling and disposal.

EPR PROGRAMS IN OTHER COUNTRIES

An overview of the status of EPR programs in Europe and Asia and their applicability to the development of extended producer responsibility in the U.S. was presented to the Roundtable by DOS consultant Colton Seale of SAIC. Attendees were provided with a copy of the EPR report prepared by SAIC for DOS.

In 1991, Germany issued the Directive on the Prevention of Packaging Waste also called the Packaging Ordinance which began the movement to apply EPR to packaging waste. In 1994, the European Union (EU) adopted the Directive on Packaging and Packaging Waste. The essential goal of the Directive was to harmonize national measures concerning the management of packaging and packaging waste, to prevent or reduce the environmental impact of packaging and packaging waste, and to provide a high level of environmental protection within member states, and in other countries. In response to the Directive, nearly all of Europe has adopted some form of packaging legislation. The approaches have been different, however, in different countries. These approaches can be divided into three categories: 1) a basic recycling approach; 2) a waste prevention approach; and 3) a market driven approach. Shared Responsibility, which represents a somewhat different approach, also is an up and coming trend.

Recycling Approach

In reality, all of the European countries have focused primarily on recycling, following the initial German model (see Appendix "Packaging Waste Management in Germany - Key Elements"). In Germany, manufacturers can either take responsibility for recycling their packaging themselves or they can join a Third Party Organization which will take over the responsibility of recycling in return for fees based on the packaging materials. Germany, and most of the other countries, have established material-specific recycling targets. Fees and quotas are material specific, based on the recyclability of a material. For example, lower fees are placed on a material such as glass where sufficient recycling infrastructure exists and higher fees are placed on plastics and composites. Conversely, lower collection and recycling quotas are set for the harder to recycle materials and higher quotas for the more traditionally recycled materials. The responsible party pays fees to a certified Producer Responsibility Organization, or Third Party Organization, which in turn guarantees recycling of a certain percent of the waste stream by contracting with recycling companies or, if necessary, funding the development of collection and recycling infrastructure. This approach appears to be working in Germany. The recycling targets are very close to being met, but the economic efficiency of the system is questioned by some.

Paul Gallay, NYS DEC, asked whether the countries that have implemented EPR legislation have had to invest in recycling technologies. Ulf Jaekel, German Ministry for the Environment, noted that the license fees from the German Duales System Deutschland (DSD) or Green Dot system have been used to create new technologies, especially for sorting and management. He also noted that with these fees, the cost to the consumer has increased somewhat, but it wasn't clear yet whether, overall, the investment had paid for itself.

The recycling-based approach also has a waste prevention impacts in that most of the fee systems are weight based, thus providing an incentive for manufacturers to reduce the overall weight of their packaging. In Germany this had the initial effect of moving packaging to lighter, yet more difficult to recycle composites. As the fee structure was revised, higher fees were placed on these materials to offset this unintended trend. Once this was compensated for, according to DSD, the result has been a substantial reduction in the overall consumption of all packaging materials in Germany. For example, glass consumption decreased almost 16 percent between 1991 and 1995 while composite consumption decreased just over five percent over the same period.

Cost allocation in the German system was described by Bette Fishbein from INFORM. In Germany, DSD pays the cost of collection, sorting, and delivery to recyclers. DSD takes the total cost and divides it among the materials, based on the cost associated with managing each material, and then applies the relevant fees to each material. This encourages source reduction within a particular material, but not necessarily among different materials since for some applications it has encouraged a shift away from plastic packaging to heavier more easily recycled materials. Gary Davis, the Center for Clean Products and Clean Technologies at the University of Tennessee, commented that this

system makes producers responsible for paying fees, but that there also are national recycling quotas. A key issue in assessing the impact of EPR on recycling is the definition of recycling. In Germany recycling includes incineration/energy recovery.

Waste Prevention Approach

Several countries have taken further steps towards encouraging waste prevention. Notably, Belgium requires all producers placing more than 10 tonnes of packaging a year on the Belgian market to prepare pollution prevention, or source reduction, plans. Also in Belgium, the primary industry organization, FOST-PLUS, operated on a voluntary basis for several years before receiving final approval. During this period it focused on waste prevention, soliciting and publishing voluntary Packaging Optimization Dossiers from its members. The majority of those published, 66, dealt with reductions in packaging weight. Other categories included moving toward more recyclable materials, moving toward mono materials, increasing reuse, and partial or total removal of packaging from the product. Several other countries have published similar reports and it appears that this method of industry encouragement and publication of waste prevention measures may be having an impact in Belgium and throughout Europe.

Taiwan appears to be moving in the same direction of requiring manufacturers to prepare waste prevention plans and also toward requiring that manufacturers record their use of virgin and recycled materials. While preparation of plans is not a guarantee of reduction, companies become aware of materials use and potential cost savings through reduction.

Denmark and several other countries have pursued waste prevention objectives by giving preferential treatment to refillables, allowing for the exclusion of refillable containers from fee systems. Portugal has gone further with regard to refillable containers, requiring that all soft drinks, beer, table wine, and mineral and spring water sold in hotels, restaurants and cafeterias be in refillable containers and that refillable containers must be available for purchase at all other outlets.

Market Driven Approach

A third approach to EPR that is worth noting is the market driven approach. The initial German model exemplified a command-and-control approach. Several countries have explored options to move toward more market-based approaches to increasing recycling rates and efficiencies.

The market approach can be looked at in voluntary systems and mandatory systems. The voluntary approach was initially taken by the Netherlands with the Packaging Covenant of 1991. The Covenant was an agreement between participating industries and governmental bodies that Dutch industry would guarantee the recovery of a certain percentage of packaging materials, reduce by 10 percent the quantity of packaging on the market, and pursue more environmentally friendly packaging. How this would be accomplished was left to industry, rather than having a system prescribed by legislation. Becoming a member

of the Covenant was voluntary, but once a company joined, participation was obligatory. To avoid the threat of mandatory legislation, industry was motivated to join. The requirements of the EU Directive and the success of the Covenant led to a binding piece of legislation, Covenant II, in 1997. Though now binding legislation, the framework for the legislation was developed based on the voluntary system pursued by industry. The Dutch system is further discussed below.

Evolving economies, such as Poland, are hoping to use this type of framework as a model for developing EPR programs to conform to the EU directive in their countries.

Taiwan also has taken a market-based approach, although notably different from the voluntary approach initially pursued by the Netherlands. Taiwan has purposefully set low recycling targets and higher fees. As recycling targets are met, fees will be lowered. The hope is that this will provide a realistic mechanism to help markets adjust gradually to the influx of new materials and will provide industry with an incentive to increase the recyclability of materials or to invest in the development of recycling infrastructure.

The U.K. also has adopted a more market based approach with the inclusion in its packaging scheme of Packaging Recovery Notes or PRNs. In the U.K. a recovery/ recycling operation can seek registration as an accredited reprocessor and issue PRNs for the quantities of packaging waste reprocessed. These documents prove that a given tonnage of reprocessing has taken place and can replace all or part of a company's fee for recycling and recovery. In addition, PRNs are a marketable commodity in the U.K.

Shared Responsibility

The term "shared responsibility" has two meanings as clarified by Fishbein. One is the government-industry sharing of responsibility and a second is shared responsibilities among the businesses serving various functions in the packaging chain. She noted that France is the original model for the government-industry version of shared responsibility and that Japan has essentially copied this model. In France, the municipality collects recyclables and industry pays the incremental costs above what collection/disposal would have cost, absent recycling. In 1997, Japan began phasing in a program that is based on shared responsibility. Municipalities collect the material and sell it as before, but if no markets exist, industry must come in and provide a market.

The U.K.'s packaging program is much more of a system of Shared Responsibility than other systems. In most countries, the fee is placed at one point in the packaging chain, such as on the product manufacturer or on the wholesaler. The U.K. system is designed to be more equitable with the monetary responsibility for packaging divided among the raw material manufacturers, material converters, packer/fillers, and sellers. Jane Bickerstaffe, Industry Council for Packaging and the Environment (INCPEN), suggested that this system has caused significant confusion (see Appendix J for INCPEN position statement). A similar approach is being pursued in Canada, although the Canadian version of Shared Responsibility may have a stronger governmental component than that in the U.K.

EPR in Canada was further discussed by Duncan Bury, Environment Canada. He noted that EPR has been on the agenda in Canada for about ten years, although most of this has been at a fairly academic level. The conversation has recently changed to how much exactly industry will pay and when. There are full EPR schemes in place in some Canadian provinces, notably for used motor oil. Regarding EPR for packaging, Canada is developing a scheme of Shared Responsibility. In 1989, industry in Canada made a voluntary commitment to change. They committed to a 50 percent target for reduction in packaging, which was achieved. The greatest change came in transport packaging. There has been a long history in Canada of local municipalities implementing and running diversion programs, but pressure is increasing for a legislated system of Shared Responsibility. Overall, the Provinces are moving independently, with the Federal government trying to provide some structure. In Manitoba, industry will pay 80 percent of waste management costs and the government will pay 20 percent, with most of the municipal costs covered through a 2 cent levy on all beverages. Beverage containers in Canada must be either recyclable or refillable. A study conducted in Ontario found a net cost of C$90 (US$60) per ton for recovery through recycling, above the cost of landfilling. The government is seeking recovery of that cost difference from industry. (See Appendix C for more on EPR in Canada.)

An overview of the Packaging Covenants in the Netherlands and the approach taken to EPR in the Netherlands was provided by Hans van Bochove, of Coca-Cola Beverages Nederland B.V. and formerly of SVM, the industry packaging organization in the Netherlands. He noted that the Netherlands is a relatively small country of 15.5 million people, with a serious lack of landfill space. The Netherlands, he said, is essentially a "consensus society" with a history of active environmental and consumer organizations. The Netherlands has banned landfill disposal of combustible wastes and eleven incinerators handle waste disposal in the country. To facilitate recycling and combustion, organics are collected separately at curbside.

To avoid legislation like that enacted in Germany in the early 1990s, industry in the Netherlands formed Stiching Verpakking en Milieu/Organization for Packaging and the Environment (SVM-Pact), which included manufacturers, retailers, recyclers, etc., *i.e.,* everyone involved in the manufacture, selling, and management of packaging. The goal of SVM Pact was to see whether the goals of recycling and waste prevention stated in the German legislation could be achieved in the Netherlands without legislation. The framework, which was put into action with the Packaging Covenant (Covenant I), was essentially to leave it to industry to determine how to reach the agreed upon goals. Covenant I included 250 manufacturers accounting for 55 percent of the packaging placed on the Dutch market. With the adoption of the EU Directive, the Netherlands was forced to adopt Covenant II, which now includes almost 4,000 companies, representing about 90 percent of the packaging on the market. Whether EPR need apply to all companies, or can be applied more efficiently by involving only the larger companies that represent a majority of the packaging on the market, is an open question.

Covenant II contains clear obligations for government and industry and government is an integral player in the whole responsibility chain relative to packaging. There are agreed upon targets for 2001 to allow only 940 kilotonnes for landfill or incineration. The current figure is approximately 2,400 kilotonnes. The overall recycling goal is 65 percent by 2001. The Netherlands is not trying to recycle all materials, just those that are economically useful; most plastics are sent to incineration for energy recovery. The Dutch current approach to achieving these goals is to leave waste prevention to packer/fillers and leave recycling to the municipality with the assistance of subcovenants with materials organizations to guarantee markets for materials when value drops to zero or below. van Bochove also noted that the Netherlands has taken the approach of talking not about specific types of packaging, but about materials, *e.g.*, paper rather than corrugated cardboard or newsprint. He noted that, overall, the approach has been successful, in that economic growth has outpaced the growth of packaging placed on the market.

Municipalities and ultimately consumers are responsible for separating compostables from the dry fraction of the waste at curbside in the Netherlands. Paper and cardboard also are collected curbside. Glass is placed by consumers in community bottle banks. There is one bottle bank for every 600 people. The municipality is responsible for placing the bottle banks and collecting the glass. Legally, industry takes responsibility for the glass once the bottle bank is lifted off the ground for emptying. After these are removed, you have the "rest fraction." This is primarily plastics. Seventy-five percent of this is sent to incinerators, 25 percent of which have integral separators to remove tinplate and aluminum. By 2015, all of the incinerators will have integral separators. Incineration is paid for by the government.

The key to Covenant II is that industry has agreed always to take recyclable materials from the municipalities at a price of no less than zero if the market price for the materials falls below zero and the materials meet a certain standard. The guarantees, van Bochove said, make the cost for municipalities about $35 per ton of material collected, where it would otherwise be between $120 to $200 per ton if the municipalities had to pay for landfill or incineration when they couldn't market the materials. Industry also guarantees a certain recycling percentage for materials: 90 percent for glass, 85 percent for paper, 80 percent for metals, and 35 percent for plastic. In short, there is no subsidy for collection, but there are guaranteed markets for the materials collected.

Packer/fillers in the Netherlands are required to maximize use of recycled content, to use refillables whenever feasible, and to help with material recycling by separating all of their commercial wastes. He also noted that material organizations have signed subcovenants saying that they will work in cooperation with the government to further consumer education. The balance of all partners is very sensitive and very important. Another part of the subcovenants is that every existing package type will have been studied within five years for lightweighting or other source reduction opportunities and new products must go through this same process. In response to a question about how the new contour Coke can, which increases materials use over previous cans, was approved in the Netherlands, van Bochove explained that industry must demonstrate only that it is the lightest contour

Coke can they can make, not the lightest Coke can. He also added that industry is given leeway so that they can successfully market products.

According to van Bockhove, Covenant I met the targets that had been set for 1994. Covenant II targets are established for 2001. He said that the incentive for companies to be doing their share to meet the targets is that if they are found not to be doing so, *e.g.*, during annual review of required waste prevention reports, they may be kicked out of the Covenant, in which case they would become individually responsible for collecting and recycling their own packaging. Davis also noted that the Dutch government can impose takeback obligations on all Covenant members if the 2001 goals are not met.

ROLES OF THE PLAYERS

Many actors play a role in the design, production, marketing, use and management of packaging. Various approaches to EPR impact these actors differently. In sharing an overview of the U.K. system of EPR, Bickerstaffe noted that responsibility is placed on all actors in the packaging chain, which makes it very complex and difficult to administer. It also results in a serious commitment of staff time for manufacturers that serve a multiplicity of functions in the chain.

In the Netherlands, van Bochove noted that to overcome some of the problems discussed in 1991 at the first meeting of SVM-Pact in preparation for Covenant I, the retailers were adamant that wholesalers and importers also be part of the process so that all could work together to address the issues. In the Netherlands there are only five or six major retail chains, so it is easier for them to provide direction to packer/fillers.

Bickerstaffe suggested that collection of recyclables is an appropriate municipal role and that industry should be responsible for looking at market development, since that is what they know. She also said that it is important to raise funds where it is least costly to do so. Harrison expanded on this idea, emphasizing that the goal is to send the appropriate signals to the point at which it is cheapest to change the system; put cost closest to where you want the impact.

Role of Manufacturers

Company-internal strategies, such as adopting environmental management systems (EMAS) or ISO 140000 certification, have had the biggest impact on companies, especially on the transport side, according to Bickerstaffe. She suggested also that the two issues that need to be addressed are 1) design of a good, comprehensive packaging system and 2) making best use of the waste management system. These two issues, she contended, should be considered separately.

The role of producers in influencing consumer choice in regard to packaging was raised. For example, consumers in the U. S. appear reluctant to purchase concentrated laundry products and advertising to overcome that barrier was suggested. However,

companies are not in the business to market packaging but rather products, stressed Keith Zook of Procter & Gamble. P&G markets clean clothes, clean hair, etc. and not packages. Thus, they are not prepared to use advertising to influence consumer choice in regard to packaging.

Role of Consumer

Responding to a question regarding the perceived increase in size of P&G's laundry detergent packaging, Zook indicated that P&G is still concentrating the detergent, but that consumer perceptions made it difficult to sell the concentrated detergent in a smaller bottle so they had to go to larger bottles of concentrated detergent, which actually is more efficient in terms of product to packaging ratio. He also noted that P&G had tried to concentrate house cleaning products, but because of perceived consumer reluctance to buy these, they decided to abandon these lines. In Europe there is a "Green Gauge" that studies the level of environmental attributes people will accept or that people desire. (This deals with a range of environmental issues well beyond packaging and not necessarily related to packaging. See **www.roper.inter.net/research/syndicated/green.htm**)

Mandated requirements to post unit prices can actually hinder consumer acceptance of concentrates. Shelf-posted unit prices based on the volume or weight of the product rather than on the number of uses show the cost of concentrates as higher than the diluted product, when the actual price per use would favor concentrates. NYC has a shelf labeling law and Steve Simon, NY City Council staffer, indicated interest in investigating possible changes to that law to deal with this issue.

Other types of labeling such as "eco" labels in use in Germany and elsewhere may help consumers identify more environmentally sound products or packages. Generally packaging is not the primary focus of such labeling programs.

Role of Retailer

In the U.S., the Nature Conservancy completed research that confirms that supermarket retailer acceptance of packaging plays a major role in the packaging decisions of manufacturers and that it may actually outweigh the demands of consumers. The complexity of the issue was pointed out by Tom Terracino, M&M Mars. For example, Kudos candies are rather small, but M&M Mars could not market them in a small box because retailers were concerned that the product got lost on the shelf and didn't sell. Harrison noted that it is interesting that the retailer is perhaps the actual customer that is driving packaging, rather than the consumer who traditionally is thought of as the customer.

In Germany, Jaeckel noted, there was no requirement for producers to remove, for example, the boxes from toothpaste, but there was a requirement that retailers provide collection bins for consumers who wished to leave this packaging at the store. The retailers then pressured manufacturers to get rid of this type of packaging. Davis noted that in

Germany the original onus was on the retailer and they were able to put pressure backward on manufacturers. In Sweden, three main retailers came together to create their own environmental label that they put on environmentally preferable packaging. He asked why this pressure didn't exist in the U.S.

Role of Municipalities

As pointed out by Bury, there are many social reasons why people want recycling, and municipalities are left to cover the costs. There is increasing demand for more materials to be added to recycling programs, which will further escalate costs. Municipal recycling programs must compete with other services for funding. Hence, municipalities are looking to industry to fund some of the recycling costs.

The U.S. Conference of Mayors (USCM) passed a resolution supporting investigation of the development of an American version of Manufacturers Responsibility (see Appendix H). Michael Gagliardo, USCM, reported that not much happened regarding the resolution until 1996 or 1997 when financial concerns raised due to the overturning of flow control and other factors caused municipalities to become more concerned with determining who pays for what and who bears what financial risks. A dialogue was started with consumer products associations, Grocery Manufacturers of America, American Plastics Council, and other groups. A panel discussion was held by USCM to give cities a perspective on packaging. Another panel is planned that will give local governments the opportunity to talk with producers about their concerns.

Municipalities now have cheap landfill capacity so recycling isn't likely to expand significantly. While solid waste staff like the idea of source reduction, their job is generally managing waste, with little incentive or funding to implement source reduction ideas. Cost effectiveness for municipalities is a key. The potential for large municipalities to pressure Congress for action was recognized. Pressure applied to Congress by the mayors of ten major cities could be effective in moving EPR forward in the U.S.

EPR GOALS

EPR programs must be designed with specific goals in mind. Bickerstaffe said that the overriding goal should be global climate change, *i.e.*, the cumulative impact of our actions on the environment, and then we should evaluate the potential of source reduction or recycling to achieve the goal of reducing greenhouse gas emissions. It is likely that source reduction will be determined to be the most effective approach, but source reduction within the broader environmental context. Ed Boisson, Northeast Recycling Council, agreed that it is very important to look at the big picture at the national level. Environmental concerns and economic efficiency, as well as achieving required functionality, all must be taken into consideration.

Waste Prevention vs. Recycling

Most EPR programs target recycling, but waste prevention has more lifecycle benefits. Clarke suggested that to maximize waste prevention we should look at measures that target waste prevention, such as Advance Disposal Fees. She also said that perhaps we should set state-level waste prevention targets. Fishbein responded that it is more important to have economic incentives than targets. She said that, for example, if you have a weight-based fee, it works to reduce waste, but if you have targets, you spend considerable time measuring and figuring out how to measure to see if you've met the targets.

Considering where you put your signals is key, according to Davis, as this will greatly influence success in source reduction or recycling. If you use takeback programs, this puts a direct link to the designer/producer and you get source reduction, but the more this link is separated from the producer, the more the incentive to source reduce is decreased.

Zook pointed out that the effect of changing packaging will have impacts throughout the whole manufacturing/transport system; hence items such as toothpaste without a box may actually cost more. Bickerstaffe indicated that she believed eliminating the box had increased transport packaging. Swedish environmental label requirement may have led to increased material use according to Zook. Due to the myriad of unintended impacts of a decision, he favors leaving the decisions to manufacturers who understand and are able to judge the potential results.

There is an increasing tension between recycling and source reduction and there is an infrastructure supporting recycling, noted Boisson. For example, changing beer from glass bottles to lighter PET bottles could jeopardize the glass recycling infrastructure and put on the market a very hard to recycle replacement, all in the name of source reduction. Jaeckel agreed that in many cases going to a lighter plastic may have more impacts than a heavier material such as glass.

An alternative view was offered by Zook who suggested that waste management fees in Germany are sometimes contradictory. The fees on a paperboard carton are five cents and fees on a lighter plastic bag that would fulfill the same role are ten cents. According to Zook, a Life Cycle Assessment performed on these two packages found that the bag is environmentally preferable overall, but said that this is inconsistent with the market incentive created by Germany's fee structure.

According to Bickerstaffe, the EU Packaging Directive is very narrow, focusing on recycling and recycling targets. This she said has caused companies to focus on the recyclability of packaging, which often does not actually further the goals of waste prevention. For example, a study in Germany found that a change in packaging from composites (which have higher fees because of lower recyclability) to steel or glass (which have lower fees) would increase the quantity of material disposed. The composite packaging would result in 11,000 tons of material to dispose, while the steel packaging would require 12 times that amount and glass would require 40 times more material. Assuming maximum currently achievable recycling rates for the glass and steel, you still

end up with more material to dispose. This increases disposal costs and transportation costs and the latter materials have a lower BTU value if the material is incinerated.

Davis raised the question of whether it would be possible to have EPR without recycling quotas or recycling quotas without EPR. Bickerstaffe responded that EPR could be focused on such things as changing the design of the total transport system. She noted that Germany has had EPR in effect the longest, yet they still have a higher per capita packaging rate than does the U.K.

Good packaging reduction strategies require clear targets according to Jaeckel. Source reduction and recycling he noted are at different ends of the spectrum and it must be clear to participants what the goals are. He noted that the Packaging Ordinance in Germany has of course gone through a lot of trial and error to get the emphasis in the right place. Packaging may have become lighter and harder to recycle, yet packaging has also decreased dramatically. He noted that there has been a general change from plastic to paper and to reusable (refillable) transport packaging from corrugated cardboard. He noted that it is important to understand transport and packaging logistics.

Commenting on the unintended results of focusing on recycling in EPR, Fishbein noted that with some products you will indeed come up with "perverse" results, but overall the record does show that even with a focus on recycling, the overall quantity of packaging has gone down in countries such as Germany. Jaeckel expanded on this, noting that in Germany, where the program is driven by DSD's license fees, there has been a decrease in packaging. He indicated that household packaging has decreased by about 900,000 tonnes and overall packaging, including transport packaging, has decreased by 1.7 million tonnes, in Germany, since the advent of DSD. He also noted that 80 percent of consumer packaging is recycled.

Boisson noted that in the U.S., most emphasis has been on industry participation in market development, but abroad it seems to have been on collection. What, he asked, has been the impact of the EPR legislation on recycled content in products? According to Jaeckel, the biggest change has been in glass and perhaps paper. He said that not so much has changed with metals because so little metal packaging is used in Europe. It has also been difficult to increase recycled content of plastic due to health and food contact issues. He noted that Johnson Controls is working on the issue of using recycled plastics in contact with food. Bury added that the real driver in Canada has been finding stable markets for collected materials. Bickerstaffe noted that there has been a strong "Buy Recycled" campaign in the U.K., primarily looking at alternative uses for recovered materials other than packaging. The big recycled content push in the U.K. has been newsprint.

The potential for EPR to impact recent changes in packaging in the U.S. that have been counter to waste prevention and recycling goals was raised by Fishbein. Examples include the contour can by Coke, which increased material use by 20 percent (2 grams per can), the use of pigmented HDPE by Hood Dairy, the proliferation of multi-resin packaging, and the increased use of adhesives in packaging.

In response to this and further questioning, van Bochove noted that in the Netherlands companies are allowed to put packaging on the market that furthers their business interests. They are encouraged to pursue waste prevention and must file waste prevention reports with SVM-Pact and are required to explain any reasons for increased packaging being placed on the market. He also suggested that there is a difference between quantitative and qualitative waste prevention. You have to look at where the packaging will go. If it will be incinerated, perhaps a high BTU multi-material package is acceptable, but if it will be recycled, then it is most important that it is a mono-material. Jaekel added that regarding the contour Coke can, since material use increased 20 percent, DSD license fees will also increase 20 percent in Germany. He noted that something like the Hood milk jug could be a problem. The pigment wouldn't change the license fees since they don't distinguish between types of plastics. He said that DSD may have the power to intervene in such a case, but such intervention would be unlikely.

Bickerstaffe noted that the E.U. has not only stressed recycling, but has issued the Essential Requirements for packaging design. Although the Essential Requirements are very broad, they will to some extent drive reductions in packaging, although the marketing function of packaging will never disappear. In the U.K., she said, they are looking at pan-sector agreements to spur packaging reduction. The purpose of this is for all companies within a sector to agree to the same reduction, such as removing boxes from tooth paste. If only one company removes the box they may lose their marketing position, but if all companies agree to take the same step this concern is eliminated. You have to get past antitrust problems, however. She noted that computer games are a classic example of over packaging, where the only solution would be a pan-sector agreement.

Municipal Costs

In Bickerstaffe's perspective, the intended purpose of EPR legislation is to decrease costs for municipalities and to decrease labor and energy costs. In fact, the costs for municipalities have not decreased because they still have to perform the same collection services for refuse whether there is more or less of it. Jaeckel responded, saying that without the Packaging Ordinance, costs in Germany would have increased more because of increased incineration and other associated disposal costs. Municipal curbside collection has decreased, he said, or is now contracted by DSD, so costs have decreased.

Financial risk to municipalities is a key issue according to Davis. Cities essentially need an insurance system. When market prices for recyclables fall below a certain level, municipalities need a guaranteed minimum price. Industry would assume the risk by ensuring that municipalities would not have to pay more than some specified amount to get rid of materials collected for recycling. Thus, they would not be at risk for increased costs to manage recycables.

HOW DOES ALL OF THIS APPLY TO THE U.S.?

Differences between European countries and the U.S. in both geography and culture are important to recognize. Eric Friedman, Massachusetts Environmental Purchasing Coordinator, noted that many of the programs in Europe have been implemented on a national level. Given the size and diversity of the U.S., he suggested analyzing regional programs which have worked and which might be applicable in the U.S. Bickerstaffe agreed that different waste management structures are valid in different contexts, so that countrywide mandates may not be the best option. Janet Matthews, NYS Legislative Commission, suggested that the best option for state and local government impact on packaging is to select discrete targets, focusing on only a portion of the packaging stream or on one industry (*e.g.*, toy or computer software manufacturers, whose products tend to be overpacked in relation to the product they convey). When broader initiatives are attempted they become more contentious, fears of increased costs and job loss are raised, and no progress is made. She also noted that there is not much grassroots support for EPR in the U.S. and that packaging reduction legislation has generally failed at the state level.

The Center for Clean Products and Clean Technologies at The University of Tennessee is looking at EPR on the local level as part of an ongoing study and the results should be available in 1999. Davis has found that from a legal standpoint, there are not significant obstacles in the way of local or regional EPR. In addition, from a financial point-of-view, local governments have the most at stake. He agreed that it is important to make strategic decisions and not target the whole waste stream. For example, some local governments were concerned about Ni-Cd batteries and targeted these. Ultimately this led to national action because manufacturers were concerned about the potential for differing mandates across the country. Programs directed at products (like batteries or electronics) seem to be easier to develop than those directed at packaging.

Globalization

Given that EPR is now a fact of life for manufacturers throughout much of the world, and that it has been approached in so many ways, U.S. companies are impacted by these programs. They face a complex set of requirements that may be different in each country in which they distribute their products.

Some companies such as Procter & Gamble, view the market globally and are reorganizing to locate business leadership centers all around the globe. Zook noted that several major products are packaged in the exact same materials worldwide, *e.g.*, diapers in polybags. For other products, *e.g.*, detergents, there are some differences. For shampoo they are working to find a single bottle that can be purchased and marketed worldwide.

Jaeckel, however, pointed out that there are differences in packaging of the same product between countries, even within Europe. For example, 60 percent of the bottles Coca-Cola markets in Germany are refillable, while virtually none of the bottles they market in France or the U.S. are refillable. Why is this the case? van Bochove answered that refillable

bottles are more expensive to the company than disposable bottles so they only use them where they are required to do so. He added that Coke is attempting to move to nonrefillable bottles in the Netherlands, but that they are required to prepare a comprehensive Life Cycle Analysis (LCA) to do so. Zook concurred that the situation is different in every way in each country and that many decisions, such as P&G's decision where to use refillable juice bottles, are based on country legislation. Davis noted that P&G has a source reduced plastic film bag for detergent in Sweden, but it is not available in the U.S. According to Zook, this 80 percent source reduced bag, when compared to cardboard, has been marketed in the U.S., but with no success. Terracino also suggested that to be successful a company must address specific market needs and desires. For example, in some countries, he said, consumers want pet food in PET containers, while in others they want it in bimetal cans.

When asked about difference in marketing between the U.S. and Europe, Terracino said that although they are about the same, the European market is more seasonal for confections, *i.e.*, M&M Mars sells lots of large, specially packaged candy items during holidays such as Easter. The major difference, however, is transport packaging. While others had noted increased use of reusable shipping containers, Terracino noted that the differences between pallets between each country can cause shipping problems and he noted that its much easier to slipsheet goods in the U.S. (Slipsheeting involves placing modules of products on a sheet of cardboard or plastic so that they can be combined into larger modules for shipping in trucks, trains, container ships, etc. The rationale for slipsheeting over use of pallets is that you can fit more product into a space with less weight, while still being able to move blocks out for distribution. Apparently the shipping system, taken as a whole, is more amenable to slipsheeting in the U.S.)

DISCUSSION OF ISSUES

Voluntary vs. Mandatory

Free riders (companies that do not participate) are a major problem in implementing EPR. They are the primary reason that voluntary schemes are difficult to implement and EPR may require a regulatory net to be sure that all of the covered companies participate.

Legal Challenges and the Role of Life Cycle Assessments (LCA)

Legal issues related to EPR were raised by Anne Marie Santangelo, NYC DOS Legal Affairs, who asked whether any countries in which EPR had been adopted had experienced legal challenges, particularly in regard to the use of environmental impact assessments and LCAs. The potential for LCAs to arrive at clear results versus being ambiguous and influenced by the sponsor was discussed. Bickerstaffe said that the LCA for paper versus plastic bags was ambiguous, while Jaeckel said that an LCA for carbonated beverage packaging was clearly in favor of refillables. In regard to legal issues, Denmark's beverage restrictions relating to banning cans and requiring refillables is being challenged

in the European Court on the basis that these are a restraint of trade. In Ontario, Canada, a levy on non-refillable bottles was upheld by the World Trade Organization, which found that it was not a restraint of trade as long as U.S. (foreign) beer still had access to the market. Fishbein noted that there had been no challenges based on antitrust issues to bottle bills in the U.S. A decade ago, Suffolk County, N.Y. passed a law banning retailer added plastic packaging. The law was not implemented for a number of years and rules were in place for only several months. Objections and legal challenges were raised by numerous interests which resulted in a revision to the law which eliminated the ban and instead emphasized recycling.

WHAT CAN NYC DO?

Packaging in the municipal solid waste stream can be reduced in two ways: 1) consumers can choose to buy products with the least packaging and, once purchased, can participate in recycling programs; and 2) producers can design packaging to reduce the amount used and to facilitate recycling. Boisson suggests that municipalities like New York City continue to develop and expand programs targeting the first strategy, such as providing convenient, efficient recycling collection services, enacting environmental procurement policies, adopting pay-as-you-throw pricing, providing public education and developing local secondary material markets.

In contrast, a municipality's options for influencing producers, the second strategy, are very few. Municipalities can help to promote change, but cannot single-handedly effect change. Working to influence Congress by joining with other municipalities and organizations to urge adoption of a manufacturer responsibility scheme tailored to the U.S. is one possible avenue. Legislation requiring specified packaging reductions could also be adopted at the city level and advocated at the state level. Recognizing the difficulty of implemention and enforcment of such a local action and its limited ability to influence the market place in a significant way, the goal would be to build a groundswell of support for legislation at the national level, with the intent of drawing industry to the table to discuss voluntary initiatives.

Davis suggested that the City of New York can act as a driver for more environmental products on three levels: 1) by establishing procurement requirements for agencies; 2) by educating the City's large consumer base; or 3) by using the legal power of the City. On a national level, Boisson suggested a partnership among groups such as the Conference of Mayors, regional state recycling organizations like the Northeast Recycling Council, the Mid-Atlantic Council of Recycling Economic Development Officials and the Mid-America Council of Recycling Officials, and major cities from throughout the nation. These groups could work in tandem, adopting resolutions to formally and publicly send a message, and inviting industry to the table in a spirit of voluntary cooperation. He also discussed public/private voluntary partnerships and the EPA-funded Plastic Redesign Project being undertaken by the Association of Postconsumer Plastic Recyclers to redesign plastic bottles. Manufacturers, he said, should be encouraged to adopt the design policy.

Packaging Tax

Enactment of a tax on packaging is a legally available option for NYC. The NYS legislature adopted revisions to the NYS Tax Law (section 1201 of Article 29) which allow NYC to enact a tax on the sale of containers. The tax can be levied on retailers or on suppliers of the packaging. The law establishes maximum fees based on the material used and reduces the rates for packaging containing specified amounts of recycled materials. (See Appendix G for copy of the law).

This law has not been used by New York City to date. While this is a legally available option, the impact of the City Council enacting such a tax within the City would have significant political and economic implications.

Purchase Preference - Procurement

Using the purchasing power of the City to further packaging waste reduction was discussed. A number of ideas were mentioned, however the practicality of implementing such measures is a concern. Among those ideas mentioned were:

- Requiring vendors to take back shipping containers or use reusable shipping containers.
- Adopting lifetime costing for purchasing decisions to encourage durable and reusable products.
- Adopting a purchase preference with allowed cost differential for packaging that is reduced, recyclable or has recycled content.
- Requiring vendors to file packaging reduction plans or meet a particular packaging waste reduction target.

The problem with a local level approach is that even with a city the size of New York, the market does not respond. For example, New York City enacted a law requiring the use of a certain percent of alternative fuel vehicles. They hoped that this law would drive the market to provide these vehicles. However, the market did not respond and now the city has a law requiring them to have vehicles that they can't obtain. The Federal government needs to take the lead in setting procurement requirements and specifications since manufacturers will tend to ignore the requirements of a single or even several municipalities or states.

Friedman expanded on this by noting that there is an inherent problem in dealing with bid specifications and packaging because of the long established process of writing bids that focus on the product's price, quality, availability, end user needs etc., not on the packaging. He noted that in Massachusetts points can be given for source reduction and recycled content, but that this just doesn't add up to enough for most bidders to change their practices just to get these points.

Incorporating environmental packaging requirements into bid specifications, however, may be counter productive to the primary goal of cost effectiveness. As more requirements are incorporated into a bid, the potential number of respondents decreases and many smaller respondents are eliminated. This is especially problematic at the local level, where the bid pool is small to begin with.

In response to a question about the extent of coordination between procurement officials in different cities, it was noted that a purchasing cooperative among cities had been started in New York State, but that there were many legal problems in doing this. The result has been that other cities are simply using New York City's contracts. Some states have come together to bid on items such as recycled content traffic cones, so there is a precedent in this area. If the governments could really coordinate, there is a lot of purchasing power in New York State and the region.

The positive impact of state actions to increase recycled content for newsprint was mentioned by Boisson. Six of the 10 states that are part of the Northeast Recycling Council have voluntary agreements between the newspaper industry and the State and two states have laws requiring 40 percent recycled content in newsprint. While sometimes the percentages specified in the agreements could not be met, this, he said, isn't as important as keeping the dialogue going and continuing to expand capacity. The important thing is to maintain an eye on the real goal rather than specific, short-term numerical targets.

APPENDIX A

List of Invitees and Attendees

(Attendees marked with *)

* Barbara Belasco
US EPA, Region 2, Solid Waste
290 Broadway
New York, NY 10007
212-637-4182
Fax -4437
belasco.barbara@epamail.epa.gov

* Carole Bell
Science Applications International Corporation (SAIC)
221 3rd St.
Newport, RI 20840
401 848-4756
cbell@mtg.saic.com

* Wade Beltramo
Mayor's Office of Operations
100 Church Street, 20th Floor
New York, NY 10007
212 788-9770
wbeltram@mayorlan.nycnet.ci.nyc.ny.us

Tom Benson
SC Johnson
1525 Howe St., MS 29
Racine WI 53403
414 260-2000 ,
fax 260-0145
tbenson@scj.com

* Judy Bergtraum
Deputy Commissioner, Div. of Municipal Supply Services
Municipal Building, 18th Floor
New York, NY
212 669-8520
fax: 669-7723

* Jane Bickerstaffe
INCPEN, Technical Director
Tenterden House, 3 Tenterden St.
London, UK, W1R9AH England
44 118 948 4256 or 44 118 947 2687. Fax:44 1189 479 520
j.bickerstaffe@dial.pipex.com

* Ed Boisson
Northeast Recycling Council (NERC)
139 Main St., Suite 401
Brattleboro, VT 05301
802-254-3636
fax: 6254-5870
eboisson@sover.net

Chris Boyd
Brooklyn Borough President's Office
Brooklyn Borough Hall, 209 Joralemon Street
Brooklyn, NY 11201

* Ken Brezner
NYS DEC, Region 2
1 Hunters Point Plaza, 4740 21st St
Long Island City, NY 11101-5407
718 482-4889
fax: 718 482-4979
kbrezne@gw.dec.state.ny.us

* Duncan Bury
Environment Canada, Nat'l Office of Pollution Prevention
Place Vincent Massey, 351 St. Joseph Blvd. 13th Floor
Hull, Quebec
K1A 0H3 Canada
819-953-0459
fax: 953-0509
duncan.bury@ec.gc.ca

* Ed Campbell
Empire State Development ORMD
633 Third Avenue, 33rd Floor
New York, NY 10017
212-803-2313
fax: 212-803-2239
ecampbell@empire.state.ny.us

* Erica Clark
US EPA, Region 2, Solid Waste
290 Broadway
New York, NY 10007
212-637-4161
clark.erica@epamail.epa.gov

* Susan Clark
Queens Solid Waste Advisory Board
6-29 161st Street
Beechurst, NY 11357

* Marjorie Clarke
The Center For Applied Studies Of The Environment (CAPSE)
1795 Riverside Drive Apt. 5F
New York, NY10034
212/567-8272
mclarke@shiva.hunter.cuny.edu

* Gary A. Davis
Director, Center for Clean Products and Clean Technologies
The University of Tennessee. Conference Center Building, Suite 311
Knoxville, TN 37996
423 974-1835
fax: 423974-1838
gadavis@utk.edu

* George Davis, III
Deputy Director, Mayor's Office of Operations
100 Church Street, 20th Floor
New York, NY 10007
212-788-2643

* Hada de Slosser
CCE of New York City
16 East 34th Street, 8th Floor
New York, NY 10016-4328
212 340-2914
hld3@cornell.edu

Brian V. DiNatale
Xerox in Rochester
Xerox Corporation, Building 304 135, 800 Phillips Road
Webster, NY 14580
716-422-6111
fax: 9211
Brian.DiNatale@usa.xerox.com

Nick Dymtryszyn
Staten Island Borough President's Office
Room 100, Staten Island Borough Hall
Staten Island, NY 10301

Judy Enck
NYPIRG
107 Washington Ave.
Albany, NY 12210
518/ 436-0876
fax: 432-6178

John Filippelli
US EPA Region 2, Solid Waste
290 Broadway
New York, NY 10007
212 637-4125
filippelli.john@epamail.epa.gov

* Bette Fishbein
INFORM, 120 Wall Street
120 Wall Street, 16th Floor
New York, NY 10005
(212) 361-2400 x 230
fax: 2412
fishbein@informinc.org

Tim Forker
Manhattan Borough President's Office
Municipal Building, 19th Floor South
New York, NY 10007
212 669-8136

* Eric Friedman
Environmental Purchasing Coordinator,
Massachusetts Operational Services Div.
1 Ashburton Place, 10th Floor
Boston, MA 02108
617-727-7500 ext. 351
fax 727-4527
eric.friedman@state.ma.us

* Michael Gagliardo
Conference of Mayors
1620 Eye St NW
Wash, DC 20006
202 861 6777
FAX 202 429-0422
gagliardo@usmayors.org

* Paul Gallay
Special Assistant to the Commissioner, NYS DEC, Region 2
1 Hunters Point Plaza, 4740 21st St
Long Island City, NY 11101-5407
(718) 482-4949;
Fax (718) 482-4026

* Lorraine Graves
US EPA, Region 2, Solid Waste
290 Broadway
New York, NY 10007-1866
212 637-4099
fax 637-4437
graves.lorraine@epamail.epa.gov

Giovani Graziosi
Bronx Borough Presidents' Office
Room 301, Bronx Borough Hall, 851 Grand Concourse
Bronx, NY, 10451
718-590-6124
fax 590-2698

Steve Hammond
NYS DEC, Division of Solid & Hazardous Materials
50 Wolf Rd, Rm 229
Albany, NY 12233
518 457-6934
fax: 0629

* Ellen Harrison
Cornell Waste Management Institute
Rice Hall, Cornell University
Ithaca, NY 14853
607 255-8576
fax: 255-8207
ezh1@cornell.edu

* Alan Hershkowitz
Natural Resources Defense Council
40 West 20thStreet
New York, NY 10011
212 727 -2700
ahershkowitz@nrdc.org

* Martha Hirst
New York Department of Sanitation (DOS), Bureau of Waste Prevention, Reuse and Recycling
44 Beaver St.
New York, NY 10004
212 837-8001

* Ulf Jaekel
Product Responsibility Division,
Federal Ministry for the Environment
(Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit)
Referat WA II 3,
Ahrstr. 20
53175 Bonn, Germany
49 228 305 2572
fax: 305 2398
wa236002@wp-gate.bmu.de

* David Kleckner
New York Department of Sanitation (DOS), Bureau of Waste Prevention, Reuse and Recycling
44 Beaver St.
New York, NY 10004
212 837-8175
fax: 837-8162
bwprr@cnct.com

* Andriana Kontovrakis
New York Department of Sanitation (DOS)
44 Beaver St.
New York, NY 10004
212 837-8166

* Pablo Lacayo
New York Department of Sanitation (DOS)
44 Beaver St.
New York, NY 10004
212 837-8257

Jerry LaMura
Queens Borough President's Office
Room 219, Queens Borough Hall, 12055 Queens Blvd.
Kew Gardens, NY 11424

Robert Lange
New York Department of Sanitation (DOS), Bureau of Waste Prevention, Reuse and Recycling
44 Beaver St.
New York, NY 10004
212 837-8156

Clare Lindsay
USEPA, Municipal and Industrial Solid waste Division
401 M St SW, mail 5306W
Washington, DC 20460
703 308 7266
FAX 703 308 8686
LINDSAY.CLARE@epamail.epa.gov

* Julia Maceda-Willebrand
Chair, Manhattan Citizen's Solid Waste Advisory Board
225 West 84th Street, 1B
New York City, NY 10024
212 877-5088
jmw255@interport.net

* Joseph Malki
US EPA, Region 2, Solid Waste
290 Broadway
New York, NY 10007
212-637-4161

* Janet Matthews
NYS Assembly , Solid Waste Commission;
Empire State Plaza , Agency Bldg. #4
Albany, NY 12248
518-455-3711
matthej@assembly.state.ny.us

Fran McPoland
Office of the Federal Environmental Executive
1600 401 M Street SW
Washington, DC 20460
202 260-1297
mcpoland.fran@epamail.epa.gov

* Melissa Murphy
New York Department of Sanitation (DOS)
44 Beaver St.
New York, NY 10004
212 837-8173

* Barbara Nichols
EPA WasteWise Program
401 M St. SW (5307W)
Washington, DC 20460
703 308-8659
fax 308-8686
nichols.barbaraa@epamail.epa.gov

Mark Nelson
Pepsi Cola
350 Columbus Ave.
Valhalla, NY 10595
914 742-4500
fax: 742-4749

* Linda O'Connor
New York Department of Sanitation (DOS)
44 Beaver St.
New York, NY 10004
212 837-8178

* Eydie Pines
USEPA, Municipal and Industrial Solid waste Division
401 M St SW, mail 5306W
Washington, DC 20460
703 308 8807
FAX 703 308 8686
pines.eydie@epamail.epa.gov

Stephen Rosario
American Plastics Council
11 N. Pearl St.
Albany 12207
518 432 7835
Fax 518 426 2276

John Ruston
Environmental Defense Fund
257 Park Ave. South
New York, NY 10010
212/ 505-2100
john@edf.org

* Suzette Riley
King County Solid Waste Division
400 Yesler Way, Rm 600
Seattle WA 98104
206 296 4352
fax 206 296 0197
suzette.riley@metrokc.gov

* Anne Marie Santangelo
Assistant Commissioner, NYC Dept. of Sanitation
125 Worth St., Rm 710
New York NY 10013
212 788-3967
fax 791-3824

Amy Schoch
ORMD, Empire State Development
One Commerce Plaza, Room 950
Albany, NY 12245
518 486-6298
Fax: 518 474-1512
aschoch@empire.state.ny.us

* Colton Seale
SAIC
221 Third St.
Newport RI 02840
401 848-4742
cseale@saic.mtg.com

* Steve Simon
Chief of Staff for Stanley Michels
49 Chambers Street, Room 400
New York City, NY 10007
212 788-7700

Derek Stephenson
President, RIS
161 Eglinton Ave E., Suite 200
Toronto ON M4P1J5
CANADA
416-480-2420 ext 120
fax: 416 480 2419
dstephenson@risltd.com

David Stitzhal
Full Circle Environmental Consulting
2955 36th Ave S
Seattle, WA 98118
206 723 0528
fax: 206 723-2452
fullcirc@halcyon.com

* Tom Terracino
M and M Mars, Envir Affairs and Safety.
800 High St.
Hackettstown, NJ 07840
908 850 2230
Fax: 908 850 2734
thomas.terracino@effem.com

Jim Tripp
Environmental Defense Fund
257 Park Avenue South
New York, NY 10010
212 505-2100

* Hans van Bochove
Coca-Cola Beverages Nederland B.V., External Affairs Department
P.O. Box 181
3100 AD Schiedam, The Netherlands
31 10 24 55 400
hvanbochove@ge.cokecce.com

Nancy Walby
Chair, Brooklyn Solid Waste Advisory Board
2163 East 34th Street
Brooklyn, NY 11234
718 258 –2701

Barbara Warren
Chair, Staten Island Solid Waste Advisory Board
199 Thornycraft Avenue
Staten Island, NY 10312
718 984-6446

Mark Wheeler
Representing NYSAR3
Millbrook, New York 12545
mwheeler@cce.cornell.edu

* Keith Zook
Procter and Gamble
2 P&G Plaza, TN-2, Box 28
Cincinnati, OH 45202
513 983-9390
fax 513 983-5226
zook.km@pg.com

APPENDIX B
Agenda

Packaging Waste: Whose Responsibility is it Anyway?

Sponsored by U. S. EPA, Region 2 and
The Cornell Waste Management Institute
on behalf of the NYC Department of Sanitation

November 6, 1998 8:30 am - 5 PM
U.S. EPA , Room A, 27th floor
290 Broadway, New York, NY

NOTE: with the exception of a short presentation summarizing existing international programs, the roundtable will be a focused discussion among participants and not a series of talks.

8:30
Registration, coffee and pastry

9-9:45
Introductions
Welcome
EPA, Region 2
NYC Dept. of Sanitation
Overview of the Roundtable
CWMI
Participants briefly introduce themselves

9:45-10:45
Summary of Initiatives in Europe, Canada, Asia and US
Short presentation by SAIC followed by participant contribution

10:45-12
Lessons Learned from Existing Initiatives
Documentation of waste reduction
Comparison of packaging in Europe and US
Benefits to government, industry
Problems/costs/obstacles
Current issues and what's next

12-1
Lunch

Afternoon:
Making the Link between Package Design and Waste Reduction and Management

1-3
What are the Goals?

- Source reduction
  - quantity
  - toxicity
- Recycling
  - recyclability
  - recycled content
- Economic efficiency
- Who Pays for What?

Implications for jobs and economic competitiveness of producers and of localities

How can progress be tracked?

3-3:15
Break

3:15-5
What would be Effective Strategies for Achieving Goals?

- **In the US, NYS and NYC?**
- **What are the roles of the various players (government, producers, retailers, NGOs, others?)**
- Procurement guidelines
- Promote industry understanding of European, Canadian and Asian requirements

- Local and state initiatives
- Consumer education
- Partnerships
- Packaging guidelines, awards

APPENDIX C

Excerpts from "Extended Producer Responsibility: A New Principle for a New Generation of Pollution Prevention"

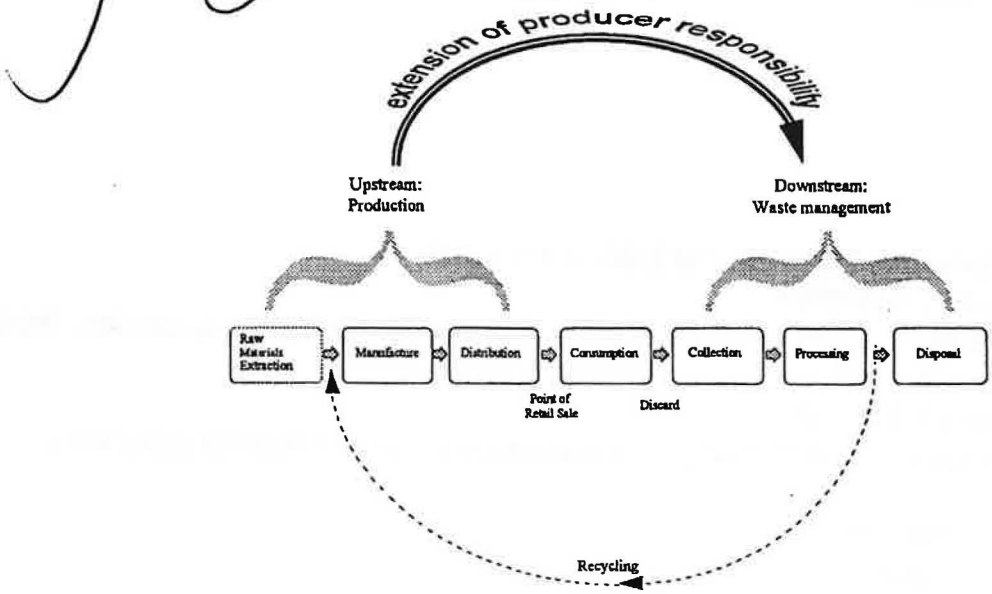
WHAT IS EXTENDED PRODUCER RESPONSIBILITY?

The traditional focus of environmental regulation has been the abatement of emissions and effluents from factories and related industrial facilities. Implicitly, this has meant a regulation of pollutants on a *facility*-basis. With the growing use of a life cycle perspective in environmental policy, where environmental impacts are assessed from cradle-to-grave, the role of producers has increasingly been seen to be key. Rather than limiting producer responsibility to the life cycle stage in which the materials processor, manufacturer, fabricator, or distributor individually operates, EPR looks to the actor with the greatest leverage over environmental improvement - and requests scope of its responsibility. Thus, the notion of *extended* producer responsibility implies that the conventional responsibilities for facility-based pollution are to be broadened. Davis provides a useful definition of EPR.

> EPR is the principle that producers bear a degree of responsibility for the environmental impacts of their products throughout the products' life cycles, including upstream impacts arising from the choice of materials, and from the manufacturing process and downstream impacts from the use and disposal of the products (Davis, 1994 [paraphrase])

A diagram of product life cycle makes this extension of producer responsibility clearer:[2]

FIGURE 1.
Extended Producer Responsibility and the Product Life Cycle



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Exerpt from "Extended Producer Responsibility: A New Principle for a New Generation of Pollution Prevention," Center for Clean Products and Clean Technologies, U. Tenn., June 1995

Corporate or Industry-Wide Product Stewardship Programs: Voluntary measures that generally deal with the downstream environmental and safety aspects of product use. An example is the chemical industry's Responsible Care Program.

Voluntary Take-Back or Buy-Back Systems: The producer voluntarily takes back or buys back products or waste materials for recycling or proper management in order to mitigate downstream environmental impacts from product disposal and to recover valuable materials. An example is the collection and recycling of aluminum beverage cans by aluminum producers.

Leasing Systems: Voluntary systems in which ownership of durable materials and products is never transferred down the product chain. Instead, the function of the materials or products is leased to the user, at least theoretically encouraging the producer to close material loops and extend product life. Extension of product life can reduce resource and energy use and life-cycle pollution significantly.

Environmental Management and Auditing Systems: Internal environmental compliance systems that can be extended upstream to provide assistance to suppliers and downstream to provide assistance to product users in reducing pollution and complying with regulations.

Voluntary Product Environmental Information Approaches: Voluntary approaches in which producers provide information on the significant environmental attributes of products so that purchasers can reflect environmental preferences in their purchasing decisions. Voluntary environmental labeling programs, such as the EU Eco-Label, which gives a seal of approval based upon preset criteria, have been the most widely implemented form of information approach.

Government Subsidies and Tax Credits: Direct subsidies or tax credits can be utilized to encourage production and use of cleaner products. The federal government in the United States provides some direct subsidies to firms for the development and demonstration of cleaner products. Some states, such as California, provide tax credits for purchase of energy efficient products. A national priority is usually the justification for a subsidy or tax credit, and they apply to selected links in the product chain.

Government Procurement of Environmentally Preferable Products and Materials: In addition to price and quality, government purchasing is directed at products that are considered "environmentally preferable." The U.S. EPA and the General Services Administration are currently collaborating on "environmentally preferable" guidelines for federal purchasing to implement Executive Order 12873 (October 20, 1993).

Mandatory Disclosure of Environmental Information: Requirements that producers or distributors provide information about the environmental attributes of a product. One example includes appliance energy efficiency labeling, which has been very successful in encouraging manufacturers to increase energy efficiency of large appliances. The Dutch have recently begun a program of mandatory life-cycle

environmental information labeling that will exist side-by-side with a voluntary seal-of-approval eco-labeling program.

Mandatory Labeling of Product Contents: Labeling that provides the user with information about the product contents, which can take two forms: (1) a simple listing of product ingredients; or (2) statements concerning the potential environmental or health impacts of those ingredients. An example of the second type is the labeling required by California Proposition 65 for products that contain potential carcinogens and reproductive toxins.

Deposit-Refund Systems: Mandatory systems in which a deposit is charged to the purchaser at the time of purchase to encourage the return of the product (or packaging) at the end of its useful life, at which time the deposit is refunded. These have been implemented in a number of jurisdictions for beverage containers.

Product Taxes to Fund Waste Management Systems: Taxes that are used to shift economic responsibility for waste management to the producer of the product that generates the waste. Examples include taxes on new automobile tires or batteries used to set up recycling or disposal systems. The German Packaging Ordinance has a packaging tax that differs for different materials that is used to fund a separate collection and waste management system.

Materials or Product Taxes: Mandatory taxes on polluting materials or products to discourage their use and to generate revenues, with the revenue not necessarily earmarked. Examples include virgin material taxes, gasoline taxes, or carbon taxes.

Mandatory Return Requirements for Consumers: Consumers are required to return products at the end of their useful life without a deposit-refund system as incentive.

Mandatory Take-Back Requirements: Producers or distributors are required to accept products or packaging back from consumers at the end of their useful life.

Materials Regulations/Prohibitions: Regulations on materials use, such as bans of toxic chemicals, restrictions on the use of certain plastics in packaging, or recycled-content requirements.

The fact that many of these policy options are voluntary or market-driven, encourages a more cooperative, outcome-oriented relationship between government and the actors along the product chain than traditional command-and-control regulations. These options also allow more flexibility for producers in achieving environmental goals and encouraging innovation, since they do not necessarily prescribe technologies.

Policies based upon Extended Producer Responsibility necessarily involve addressing the life-cycle environmental impacts of product systems and whether the policies reduce those impacts. Although the quantitative tool of life-cycle assessment is still being refined, particularly for the evaluation and comparison of impacts, some form of life-cycle approach is better than ignoring the links between life-cycle stages. Of course, political and cultural values come into play

differ in the particular producer upon which the primary responsibility is placed.

It is impossible to generalize about whether voluntary or mandatory approaches to EPR are most suitable. Ideally, governments can define an appropriate level of recycling activity, for instance, and leave the decision to implement take-back to the actors in the marketplace. Despite the controversy surrounding the mandatory take-back of the German Packaging Ordinance, it has been effective in promoting voluntary EPR in other sectors in anticipation of the imposition of mandatory measures.

Policies for durable goods may be different than policies for packaging. Some suggested that take-back may actually be more suitable for durable goods than for packaging, because the relatively few distributors of durables reduce collection and transportation costs and because durables have a higher value at the end of their useful lives. Packaging and other non-durables are much more regional in nature and have high collection and transportation costs in comparison to their value.

POLICY INSTRUMENTS FOR EXTENDED PRODUCER RESPONSIBILITY

As discussed in the introduction and the papers that were presented during the symposium, there is a range of policy instruments that encourage producers to accept greater responsibility, from voluntary to mandatory and from upstream to downstream. The type of product may influence the most appropriate policies (durable goods, for instance, versus non-durable). The policy instruments also

In selecting the policy instrument for application of the EPR principle we must understand the goal or outcome we are looking for and how that influences the choice of instruments and the placement of responsibility. Is the goal to encourage the producer to alter the design of products? Is it to tap the expertise of the producer in managing the product after its useful life? Is it to generate funds for waste management as a means of cost shifting? For instance, with the explicit goals of reducing solid waste disposal and

increasing recycling of packaging, the Germans chose a combination of mandatory take-back and ambitious recycling goals. The primary responsibility was placed upon distributors of packaged products and upon packaging manufacturers. Virgin materials taxes have been proposed in some countries with goals of reducing the use of non-renewable resources and increasing use of secondary materials. The onus of such a tax would initially fall on materials suppliers.

There are several ways that policies embodying the principle of EPR can be categorized. One useful way is to speak of policy instruments as being regulatory, financial, or informational. Another way is to look at the portion of the product life-cycle upon which the primary responsibility is placed.

Regulatory instruments that embody the principle can include:

- mandatory take back;
- minimum recycled content standards;
- secondary materials utilization rate requirements;
- energy efficiency standards;
- disposal bans and restrictions;
- materials bans and restrictions; and
- product bans and restrictions.

There was some discussion about whether bans and restrictions on materials, products or waste disposal are EPR. In one sense they are EPR, because they usually address environmental impacts that occur at stages of the life-cycle other than the production facility. They drive changes in environmental impacts throughout the life-cycle of the material or product regulated in a very direct way.

Economic instruments that embody the principle include:

- advance disposal fees;
- virgin materials taxes;
- removing subsidies for virgin materials;
- deposit/refund; and
- environmentally preferable products procurement.

Deposit/refund systems place primary responsibility on different links in the product chain than advance disposal fees, since deposit/refund relies heavily on distributors and requires involvement of the consumer while advance disposal fees place a hidden cost on the product to fund a management system that is often the responsibility of the producers. A key question for these types of waste management or recycling systems is, "who manages the system and determines waste management priorities and standards?"

Information instruments that embody the principle include:

- seal-of-approval types of environmental labeling (Green Seal, Energy Star);
- environmental information labeling (energy efficiency labeling, CFC use);
- product environmental profiles that pass from one link in the chain to the next;

- product hazard warnings (California Proposition 65, Consumer Product Safety Commission); and

- product durability labeling.

Most information approaches place the primary responsibility on the producer to develop and provide the information, either voluntarily for market advantage or as a regulatory requirement. Of course, consumers are also involved in responding to the information and must demand cleaner products in order for information instruments to succeed. The Dutch, for instance, are basing their Product Policy on mandatory life-cycle environmental information to be shared among producers in the life-cycle and summarized in some form on product labels for the benefit of consumers.

APPENDIX D

Excerpts from OECD Phase 2 Extended and Shared Producer Responsibility Report

Unclassified **ENV/EPOC/PPC(97)19/REV2**

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PARIS

Organisation de Coopération et de Développement Economiques
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Group on Pollution Prevention and Control

Extended and Shared Producer Responsibility

Phase 2

EXECUTIVE SUMMARY

Contact: Fabio Vancini, Tel (33-1)45 24 76 95, Fax (33-1)45 24 78 76
E-mail: fabio.vancini@oecd.org

65385

Document complet disponible sur OLIS dans son format d'origine

Or. Eng

FOREWORD

Many OECD countries -- in accordance with the Polluter Pays Principle (PPP) -- are taking measures to expand private sector responsibility for conserving resources and energy and reducing the quantity of pollutants released and waste destined for final disposal. This approach of Extended Producer Responsibility (EPR) is aimed at making the private sector responsible for efforts to reduce environmental impacts from both the use and disposal of their products and to use and benefit from recycling, recovered resources and reclaimed materials in doing so.

In 1994, an OECD project on EPR was initiated, focusing particularly on programmes to address what many regard as the "weakest link" in the product responsibility chain: the final disposal of products after their sale to and use by consumers. The overall themes of each phase under the EPR Project are:

Phase 1 *Review of legal and administrative approaches in OECD Member countries and development of initial policy options for EPR programmes (1994-1995);*

Phase 2 *Analysis of economic efficiency and environmental effectiveness of various approaches to EPR (1996-1997); and*

Phase 3 *Examination of EPR approaches and issues through a series of multi-stakeholder workshops, culminating with a joint workshop combining efforts under EPR and Waste Minimisation OECD work programmes. Synergies are expected and the workshop results will serve as a basis for the development of comprehensive policy options in the form of guidance manual for governments (1998-1999).*

The *Phase 1* Report was based on extensive interviews and information gathered across the OECD area and was published in 1996 (OECD Environment Monographs No. 114, OCDE/GD(96)48).

Phase 2 consists of four areas: *a)* in-depth case studies on existing EPR systems, *b)* possible trade implications, *c)* economic analysis of EPR options, and *d)* development of an overall 'Phase 2 Framework Report' for implementing EPR programmes with a particular focus on the policy and legal considerations for sharing responsibility.

This document on "Extended and Shared Producer Responsibility" is the Executive Summary of all the work undertaken under *Phase 2* of the EPR Project. It is meant to serve as a self-standing brief for policy makers and other interested parties. The conclusions reflected in this Executive Summary are subject to further development and refinement as this Project progresses through *Phase 3*. This document has been produced within the OECD Secretariat by Fabio Vancini.

Delegates to the OECD Pollution Prevention and Control Group have had the opportunity to peer review this document and have agreed that it should be de-classified.

This document is published under the authority of the Secretary-General of the OECD.

Extended and Shared Producer Responsibility

Phase 2

EXECUTIVE SUMMARY

Many Member countries of the Organisation for Economic Co-operation and Development (OECD) are placing increasing importance on a promising new public policy tool commonly referred to as Extended Producer Responsibility (EPR). Considerable work on this tool has already been undertaken by OECD under Phase 1 of the EPR Project. In Phase 2, the OECD undertook further evaluation of EPR approaches taken in selected Member countries, and developed a detailed assessment of design and implementation factors for extending and sharing responsibility to achieve equitable and efficient EPR programmes.

This work, funded by the Government of Japan, takes a focused look at ways to minimise wastes by transferring substantial or complete financial responsibility to private enterprises for managing their products at the post-consumption phase. When properly undertaken, EPR's strength lies in its ability to simultaneously operationalise life-cycle thinking, the waste minimisation hierarchy, and the Polluter Pays Principle. OECD analysis to date confirms that EPR is a promising tool in support of sustainable development.

Context

Within the context of developing systematic approaches toward waste minimisation, closed material cycles and a reduced dependence on natural resources, the relatively new approach embodied by "Extended Producer Responsibility" (EPR) addresses, in a tangible way, some key environmental sustainability challenges. EPR can help address such challenges under at least three broad thematic areas:

(1) ***economic support measures***: a historic over-reliance on certain government subsidies that may stifle technical change, block a fuller internalisation of externalities, and possibly cause sub-optimal ecological and economic outcomes,

(2) ***consumer behaviour***: the challenge of enlisting the consumer to act in accordance with certain environmental objectives, and

(3) ***waste generation trends***: annual waste generation rates that continue to rise in concert with Gross Domestic Product.

Though EPR is but *one approach* in support of environmental sustainability, it has the potential, when properly undertaken, to act as an important driver stimulating continuous improvement in overall public and corporate environmental governance.

Perspectives
on Extended Producer Responsibility

"... it injects a new business and competitive dynamic", "..it can promote innovative advancement and resource efficiency", "...it is a way to concurrently actualise waste prevention and closed material loops...", "...it can embody a link between product policy and waste policy, and build life-cycle materials management systems", "...it is a means toward the elimination of government subsidies that do not favour a fuller internalisation of externalities associated with waste management", "... as a favourably looked upon evolving instrument, it represents the future for an increasing number of industries that produce or import products within and outside the OECD area ...", and "... in view of the broad participatory process and chain management necessary for achieving best overall results, one might appropriately describe EPR as "Extended and S H A R E D Producer Responsibility."

The statements in the box above illustrate views expressed by different OECD Member countries in the context of this EPR project. These observations reflect the multi-objective nature of the EPR approach, and the positive opportunities it provides. Clearly, however, opportunities, and particularly the benefits thereof, do not come automatically. The realisation of EPR's benefits requires strategic planning, oversight and leadership by governments, appropriate stakeholder input in the setting of performance requirements, and the active involvement of all relevant societal actors for the actual attainment of established objectives. A rich mix of other considerations must also be taken into account, such as changing the legal concept of "ownership", preventing and controlling free-riding of all sorts, minimising problems associated with potential monopolistic positions of corporate "Producer Responsibility Organisations", and attending to international trade matters. In short, the likelihood of realising the fruits of an EPR approach significantly increases when a range of programme design factors are provided for, implemented, and subsequently refined.

Project Background

Many OECD countries are presently taking measures to expand corporate responsibility for conserving resources and energy, and reducing the quantity of wastes destined for final disposal. The EPR approach is broadly aimed at making the private sector responsible for efforts to reduce environmental impacts from the disposal of their products by using modified industrial processes, waste prevention, product reuse, and the recycling and recovery of materials. Whether embodied in negotiated agreements, legislation, or industry-led voluntary initiatives, successful EPR programmes tend to *change the conventional balance of responsibilities among manufacturers and distributors, the consumer, and the government.* This change in dynamics would occur perhaps most tangibly with respect to the post-consumption stage of the product's life-cycle. Such programmes *extend* the responsibilities assigned to producers and to distributors in the past, i.e., worker safety, prevention and treatment of environmental releases from production, financial and legal responsibility for sound management of production or

industrial wastes, and civil responsibility for dangerous products, to include financial and possibly also physical responsibilities for *the management of products at the post-consumption stage*.

By doing so, EPR leverages life-cycle thinking and encourages producers to re-evaluate key *upstream* design decisions that only they can make to minimise the waste and pollution potential of products. Therefore, a number of factors become increasingly important strategic matters for private enterprises. These include, but are not limited to, product conception, design for reuse and recyclability, materials selection, production processes, packaging, distribution/reverse distribution and marketing approaches.

In 1994, the OECD began its EPR Project to document and support the development of this promising new instrument. In 1995, the OECD Washington Waste Minimisation Workshop explored ways to achieve these strategic goals using EPR[1]. In 1996, the OECD Phase 1 Report presented the results of an extensive survey of EPR developments in many Member countries[2]. That report offered initial recommendations for the basic design of EPR programmes and steps by which governments may support such programmes. These recommendations all have been subsequently reaffirmed as part of OECD's current EPR work reflected herein.

The concept of EPR as articulated under Phases 1 and 2 of this work -- that producers should take more responsibility for the cradle-to-grave environmental impacts of their products (particularly with respect to product end-of-life impacts), and that there is a need to internalise externalities to a greater extent in the price of products -- reflects one approach for reducing the environmental impacts of products. A key focus of OECD analysis to date is on the role that producers, acting independently or jointly, can play in improving the environmental attributes of products. The focus on producers does not mean that other actors in the product chain will have no role in achieving desired objectives. Moreover, as explained in the Phase 2 work, there are considerable opportunities, which some Member countries are pursuing, to design EPR programmes that extend and share post-consumer product responsibility throughout society.

Because the bulk of EPR experiences to date are associated with post-consumption packaging, OECD's analysis has mostly, though not exclusively, used the lessons learned from packaging programmes as the analytical backdrop for undertaking its work. Nevertheless, the principles and interim policy recommendations that have been developed during this phase of work are constructed to have broader applicability also to other products, including those of a long-life and complex nature. The outcome to date is not definitive. During Phase 3 of this EPR Project, a series of multi-stakeholder, multi-sectoral workshops will be undertaken to further evaluate EPR (1998-1999). To achieve efficiencies and set the stage for developing comprehensive policy guidance, OECD Member countries have decided to combine the culminating workshop under the EPR Programme with the culminating workshop under the Waste Minimisation Programme. *The conclusions reflected in this Executive Summary are therefore subject to further refinement and development during the culminating phase of work.*

The Core of EPR

The essence of EPR is *who pays for, **not** who physically operates*, the waste management system. EPR provides producers with incentives to reduce operational costs for which they now have

1. Extended Producer Responsibility Programmes, pp 203-218 in "Washington Waste Minimisation Workshop. Volume II - Which Policies, Which Tools?" (Paris, 1996)
2. Extended Producer Responsibility in the OECD Area - Phase 1 Report". OECD Environment Monographs, No. 114 OCDE/GD(96)48. (Paris, 1996)

become responsible as their products reach the post-consumption phase. The new financial incentives encourage producers to acquire new skills and increasingly act in accordance with the life-cycle approach to product systems. Producers' actions, coupled with consumers' support, would be expected to result in the fullest possible achievement of many goals shared by OECD governments:

- waste prevention and reduction;
- product reuse;
- increased use of recycled materials in production;
- reduced natural resource consumption;
- internalisation of environmental costs into product prices; and
- energy recovery when incineration is considered appropriate.

Even in those cases where financing is fully internalised by producers, local authorities can continue their traditional role as handlers in waste collection, though now as contractors.

Municipal waste is the only substantial part of the total waste stream that in most countries is not managed by the industries that are generators of the waste, but is managed by governments at the expense of taxpayers. EPR recognises that producers are most able to design cleaner products so as to prevent waste, minimise downstream pollution control costs, and incorporate unavoidable costs into product pricing.

Thus EPR is a means to reducing the need for government subsidies associated with waste management, i.e. costs linked to the management of products in the post-consumption phase. This would in principle be done by shifting such costs from the taxpayers to final producers for internalisation into product pricing. Furthermore, consistent with the results usually seen from better waste minimisation, well-managed EPR systems can be expected to be accompanied by increased production efficiency and competitiveness, for both the industries and the nations involved.

Material and Capital Flows

For many products, *EPR programmes will establish new or modified systems of material and capital flows.* In order to illustrate the nature of such flows throughout a product's life cycle, the generic figure below has been developed. The figure also introduces the corporate "Producer Responsibility Organisation" (PRO), the important new social institution that is emerging as a key means, in many countries, to the success of the individual producers in meeting their collective EPR responsibilities. The figure, which is fully explained in the Phase 2 Framework Report [ENV/EPOC/PPC(97)20/REV2], is not intended to provide an exhaustive representation of EPR systems, since there are a host of other fundamental activities especially involving governments that are not indicated, including target setting, monitoring, and sanctions.

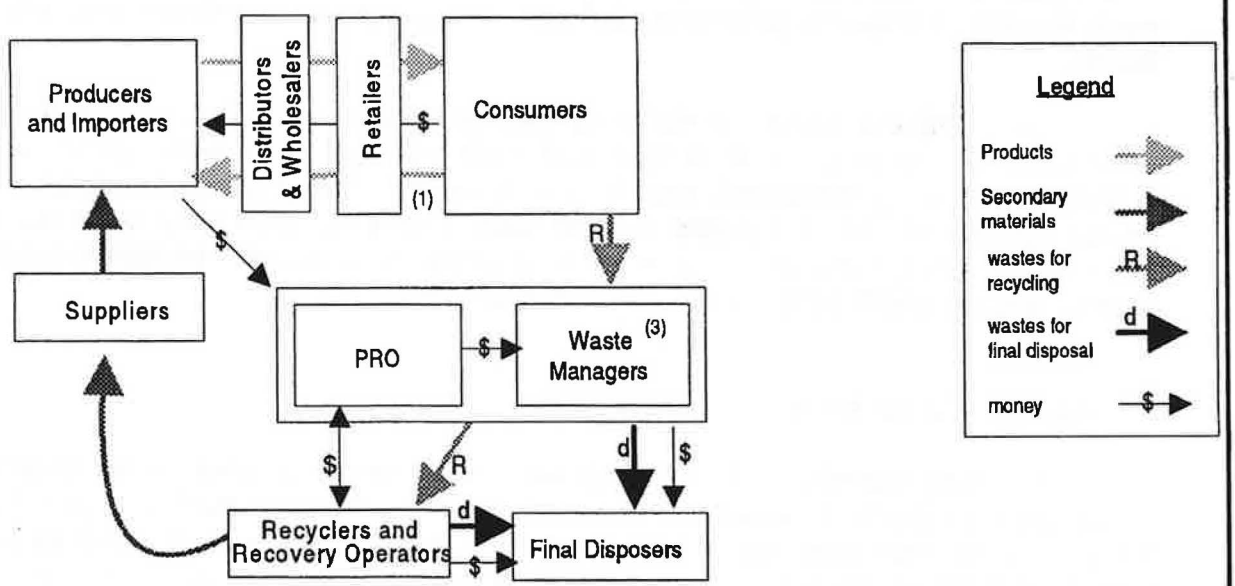
A Continuum of Approaches

A continuum of possible approaches exists for establishing EPR systems, ranging from industry-led voluntary initiatives, to government/industry negotiated agreements, to legislated approaches. OECD research to date indicates that the partial failure of voluntary EPR programmes has usually occurred because such efforts have been limited to a few producers of readily recoverable products, and because of the inherent difficulty in dealing with non-participants, commonly referred to as *free riders*. Within an

industry sector, some companies will, given an opportunity, opt to remain outside of an EPR programme in order to receive an (unfair) economic advantage over competitors that voluntarily participate.

Where negotiated or mandatory programmes have been instituted, it is often because fully voluntary programmes have proved insufficient for the fulfilment of EPR objectives. Therefore, in order to establish a far-reaching, widely effective EPR programme with a level playing field, government action will likely be needed. This may be either *(a)* by a law outlining necessary programme elements and authorising a responsible government agency to provide additional details by regulation, which could be negotiated with industry, or *(b)* by a law requiring a government-industry negotiated agreement or "covenant" to establish programme elements.

Material and Capital Flows in an EPR System



(1) The side-stream cycle of refillables/reusables/returnables is reflected in a thin "take-back" arrow from consumers to producers.
(2) The Producer Responsibility Organisation (PRO) is the private-sector association funded by producers and importers to assure waste management with recycling and recovery.
(3) "Waste managers" may include private companies or local governments receiving funds from the PRO.

Negotiated approaches between government and industry can provide significant opportunities for all stakeholders to be involved in a process of consensus building. A transparent, inclusive process will facilitate more creative, lower-cost, and quicker solutions. The government could allow the private sector the possibility to devise the self-regulating means and solutions to achieve the performance objectives that have been set. Detailed governmental regulations should probably be avoided as much as possible except as necessary to empower the corporate Producer Responsibility Organisation to achieve EPR goals.

APPENDIX E

Summary of the Netherlands Program, SVM-PACT

SVM•PACT®

Dealing effectively with environmental challenges for packaging

- From the first Packaging Covenant to EU Directive
- From EU Directive to Dutch Ministerial Order
- Packaging Covenant II next to the Ministerial Order

Hans van Bochove
Projectmanager Business Activities
Organisation for Packaging and Environment
(SVM•PACT)

SVM•PACT in brief

SVM•PACT is the Dutch packaging chain organisation which coordinates the implementation of Packaging Covenant II and which promotes the interests of trade and industry in the field of packaging and environment.

In dialogue with Dutch government a.o. and according to the agreements of the first Packaging Covenant, members of SVM•PACT's predecessor SVM and their trade-organisations have made considerable environmental efforts. After the introduction of the EU Directive and the Ministerial Order on Packaging and Packaging Waste Dutch trade and industry maintains the policy of self-activation through Packaging Covenant II.

Most important startingpoint in this regard is that ecology and economy ought to go hand in hand.

- Environmental measures should meet the following conditions
  - clear and proven environmental benefit
  - sound economical basis
  - technical feasibility within a reasonable timespan

Part 1

From the first Packaging Covenant to Directive

Packaging in perspective

(1) To talk about packaging one first has to determine what packaging is.

- "Packaging are products, used for
  - containment
  - protection
  - loading
  - delivering and
  - offering

  of raw materials to endproducts,

- regardless of their use in
  - domestic or
  - business-to-business applications,

- and regardless of the material(s) they are made off"

(2) Packaging has functional qualities but nevertheless requires raw materials and is usually being disposed of after use.

- **size of the packaging waste problem**
  - packaging is a modest part of total waste stream (1-2% in kilos)
  - but is voluminous

- **packaging is recognizable and tangible**
  - 50/50 division household and b-to-b-waste

- **is not only an environmental problem but also a societal problem**

(3) In striving for prevention and reuse of waste a (rigid) priority order emerged in the late eighties/begin nineties; also applicable on packaging waste.

- **prevention (quantitative and qualitative)**
- **packaging reuse**
- **material reuse (recycling)**
- **incineration (with energy recovery)**

Three major challenges

To reduce the volume of packaging waste, the Dutch packaging chain is focusing on three activities.

- closing the recycling loop at the lowest possible costs
- making more economical use of packaging material and energy
- seriously considering a change to refillable packaging wherever it is of clear and proven environmental benefit and economically feasible

From threat...

(1) In striving for prevention and reuse of packaging waste governments have a broad range of severe measurements available to them. To name just a few:

- levies on materials
- eco-taxes on oneway packaging
- forced deposit money systems
- compelled take back systems
- banning certain materials and forms of packaging
- common secondary objective: a shift of municipal packaging waste handling costs to trade and industry

(2) Late eighties/begin nineties in both The Netherlands and neighbouring countries a worrisome situation emerged for trade and industry as a result of a screaming environmental discussion on packaging and packaging waste and the (legal) measures which came along.

- consideration by Dutch government to introduce a dual system
- introduction of a resolution on a deposit money system
- attitude of environmental organisations and consumers to packaging

.To opportunity

Regulation regarding compelled take-back and recycling of packaging generally is rigid, very expensive and open-ended. In striving to avoid these an important part of Dutch trade and industry founded SVM•PACT's predecessor SVM and signed the first Packaging Covenant with Dutch government.

- representation of whole packaging chain by one organization (unique in the world)
- pro-active attitude
- reaching goals on basis of self-activation and chain responsibility
- thus avoiding a possible 2-3 billion guilders loss of buying power

2

Part 4

From EU Directive to Dutch Ministerial Order

National arrangements

Following the European Directive every memberstate should already have a national law on packaging and packaging waste. In The Netherlands the Ministerial Order on Packaging and Packaging Waste has been introduced on august 1st 1997 thereby replacing the first Packaging Covenant.

In The Netherlands on a national level the maximum targets of the EU Directive have already been reached years ago. After a year of talks the Ministerial Order was nevertheless kept a direct translation of the EU Directive and therefore based on its maximum targets. However the targets were transposed to the level of the individual producer/importer. Next to the Ministerial Order government and trade and industry agreed and signed the Packaging Covenant II on december 15th 1997. This Covenant contains targets and obligations that exceed those of the Ministerial Order, but is again based on chain responsibility and market forces. Each company that signs the Packaging Covenant II is exempted from the most important individual obligations of the Ministerial Order.

Ministerial Order

(3) Who is the producer/importer?

- **the company that places a packed product for the first time on the Dutch market**
  - adding packaging to a product
  - having a product packed
  - repacking products
  - importing packed products
- **private label *owner***
- **producer/importer of *point-of-sale* packaging**

Ministerial Order

(1) The Ministerial Order states obligations for different parties, but most obligations are for producer/importers.

- **for a producer/importer**
  - quantitative and qualitative prevention
  - monitoring (packaging data)
  - recovery (65%) en recycling (45%) with a minimum per material (15%)
  - reporting once every three years
- **for a non-producer/importer**
  - **measures to help the producer/importer to fulfill his obligations**
- **for a disposer of b-to-b packaging waste**
  - separation, disposal and recycling on his costs

(2)

- **municipalities stay (financially) responsible for the collection of household packaging waste, including the separate collection of glass, paper/cardboard and textiles**
- **stipulations regarding:**
  - essential requirements for packaging
  - monitoring
  - marking and material identification

  definit stipulations from Brussels and proposals of CEN are still being prepared (lose ends!)

(4) The Ministerial Order can be executed by producers/importers in three ways.

- **agreement on a Covenant (effected)**
- **individual implementation**
  - company falls directly under the Order and reports directly to the government
- **cooperation with other producers/importers**
  - companies form a collective; collective takes over responsibilities and falls directly under the Order and reports directly to the government
  - companies keep their individual obligations

First Packaging Covenant

(1) Document in which clear obligations were stated for both trade and industry and government; each with its own responsibilities.

(2) Based on chain responsibility and chain management; prevention of waste and as much as possible reuse of packaging and packaging material.

(3) The first Packaging Covenant has been a great succes. Time has given trade and industry the possibility to look for effective and efficient solutions.

- **companies have developped and implemented business embedded envlronmental policies on packaging**
- **pilotprojects**
- **targets for prevention and recycling**

First Packaging Covenant

(4) The results of the Covenant are significant.

- **prevention**
  - as from 1993 an increasing gap between total added packaging and Gross Domestic Product
- **product reuse**
  - no forced switch to reusable packaging as a result of Life Cycle and Market Economic Analyses
- **material reuse (recycling)**
  - more than 50% recyclingrate in 1996
  - recycling loop which is unique in the world
  - no separate curbe side collection of household packaging waste but tailormade solutions for each material
  - municipalities stay responsible for the collection

European Directive

(2) The European Directive also contains stipulations regarding enforcement, stimulation en standardization. These are currently still being developed in a European context and can have far-reaching consequences.

- **enforcement**
  - reporting
  - databases
- **stimulation**
  - marking (separate concept European Directive)
  - material identification
- **standardization**
  - definitions, scope etc. (Article 21 Committee)
  - standardazation (CEN)

European Directive

(1) The European Directive is formally meant for harmonization, but does everything except that. It contains specific targets for recovery and recycling only.

- **prevention/packaging reuse**
  - vague provisions
- **recovery**
  - composting + recycling + incineration (with energy recovery)
  - 45% - 65%
- **recycling**
  - 25% - 45%
  - minimum 15% per material

Part 3

Packaging Covenant II next to the Ministerial Order

Packaging Covenant II

(1) Dutch trade and industry wanted a new Covenant.

- **macro (Dutch society)**
  - enormous cost avoidance / save buying power

- **meso (trade organization) and micro (individual company)**
  - exemption of legal individual obligations
  - fair charing of responsibilities
  - time for realization up until 2001 instead of direct
  - addition of recycling percentages of all materials
  - collective channeling of recovery/recycling
  - collectieve reporting and monitoring
  - lowering chain costs by enabling trade and industry to pack according to functional requirements and assuring market forces

(2) Packaging Covenant II consists of several sub-covenants; first sub-covenants per material.

- **sub-covenants material reuse**
  - glass
  - paper/cardboard
  - metals (ferro and non-ferro)
  - plastics
  - wood

- **between**
  - central government and municipalities on one hand and
  - (usually) raw material producers on the other

(3)

- **general contents of sub-covenants material reuse**
  - municipalities responsible for collection
  - delivery of separate collected materials according to specifications
  - garantuee from industry to take over the materials delivered accordingly for at least zero guilders and to recycle it
  - recycling targets
  - monitoring

(4) Producers/importers have their own sub-covenant with regard to prevention, repporting etc.

- **general contents sub-covenant producers/importers**
  - quantitative and qualitative prevention
  - monitoring
  - reporting

- **but also**
  - promoting the use of secondary raw materials in new packaging
  - separation of packaging waste
  - co-financing recycling projects *if necessary*

(5) Across the sub-covenants there is an Integration Covenant between representatives of Dutch trade and industry as a whole and the government.

- **general contents Integration Covenant**
  - national overall target of sub-covenants
    - in 2001 a maximum of 940 Kton of packaging waste is allowed to be incinerated/dumped
  - to be reached by individual measures in the light of the folowing collective obligations:
    - prevention
      in 2001 use 10% less material than in 1986, corrected for development in GDP!
    - recycling
      in 2001 recycle 65% of all packaging!
  - general conditions under which environmental measures should be implemented
  - general lay-out for monitoring
  - installation and tasks of Packaging Committee

Win-win-win situation

- **advantages for the packaging chain**
  - no more free-riders
  - flexibility
  - no taxes on oneway packaging and deposit money
  - a very cost effective recycling loop

- **advantages for the government**
  - government gets more than EU Directive
  - concrete prevention target / reuse effort / much higher *recycling* target (65%)
  - easier enforcement of Ministerial Order

- **advantages for the civilians**
  - no unnecessary loss of consumer buying power and no unnecessary separation at home

APPENDIX F
Summary of Canadian Program

STEWARDSHIP AND PRODUCER RESPONSIBILITY

Duncan R.W. Bury
National Office of Pollution Prevention,
Environment Canada

Packaging Waste: Who's Responsibility Is It Anyway?
New York, November 6, 1998

INTRODUCTION AND OVERVIEW

- Stewardship origins
- What's driving stewardship and producer responsibility initiatives?
- A national overview
- International perspective - OECD
- Linkages to other environmental policies
- Issues and challenges

DEFINITIONS AND SCOPE

- A variety of terms: "stewardship", "user/producer responsibility", "extended producer responsibility"
- Common themes of responsibility for environmental impacts, upstream and downstream
- Key questions:
  - who pays, when and how much?
  - producer or product responsibility?
  - shared or producer responsibility?

POLICY DEBATE

- CCME Guiding Principles for Packaging Stewardship May 1996 "*industry, governments, and consumers assume a greater responsibility for ensuring that the manufacture, use, resue, recycling and disposal of packaging has a minimum impact on the environment*"
- OECD EPR 1996 "*manufacturers and importers of products should bear a significant degree of responsibility for the environmental impacts of their products throughout the products life cycles*"

FIRST VOLUNTARY CANADIAN INITIATIVES

- Canadian Chemical Producers Association (CCPA) Responsible Care - started 1985
- National Packaging Protocol (NaPP) 1990 CCME voluntary multistakeholder covenant with diversion targets and policies (eg. minimal impact)
- Crop Protection Institute container management program - objectives set 1989
- CIPSI proposal 1993 - 1995 - partial funding through industry levy for municipal recycling

REGULATORY DEVELOPMENTS IN EUROPE

- Producer responsibility first focused on packaging
  - German Packaging Ordinance - 1991
  - France Eco-Emballage - 1992
  - Belgium Fost Plus - 1993
- European Community Packaging Directive - December 1994 - set EC wide requirements
- Progressive expansion of approach to other products nationally and across the EC - eg. tires, end of life vehicles, electronics

STEWARDSHIP AND PRODUCER RESPONSIBILITY DRIVERS

- Taxpayer fatigue with financial burden for disposal and recycling - municipalities
- Search for alternatives to prescriptive "end of pipe" regulatory approaches
- Concerns over resource scarcity and environmental impacts of extraction/production
- Concerns about poor incentives to change consumption habits or to reformulate products/packaging
- Increasing focus on pollution prevention

STEWARDSHIP AND PRODUCER RESPONSIBILITY OBJECTIVES

- Shift from "taxpayer pay" to "user/producer pay"
- Waste minimization - prevention/reduction
- Stabilization of and creation of secondary materials markets
- Increased use of recycled materials in production
- Reduced natural resource consumption
- Internalization of environmental costs into product prices

CURRENT PROVINCIAL INITIATIVES

British Columbia

- Post Consumer Residuals Stewardship Program Regulations March 1997
- Option of voluntary industry self directed programs - prescriptive option of take back depots
- Deposit return on liquor and wine April 1998
- Stewardship programs or plans - paint, used oil, solvents/flammable liquids, pesticides, pharmaceuticals

CURRENT PROVINCIAL INITIATIVES

Alberta

- Beverage Container Management Board - regulated collection and recycling
- Scrap tires - regulated industry responsibility
- Alberta Used Oil Management Association - 1997 industry take back - back drop regulation
- EnviRx - pharmacy run take back of "dead drugs"
- Discussions underway with paint industry

CURRENT PROVINCIAL INITIATIVES

Saskatchewan

- Used oil take back regulations - product management industry association
- Scrap tires - voluntary industry run
- Beverage collection - deposit return SARCAN
- Legislative provisions in place to add other products to industry responsibility approach

CURRENT PROVINCIAL INITIATIVES

Manitoba

- Multi-Material Stewardship Regulation, 1995
- Established multi-stakeholder Manitoba Product Stewardship Corporation - funds raised through levy to support municipal 3Rs programs
- Designated materials - beverages(levy in place) newspapers, phone books, ad mail, magazines under discussion
- Used oil take back program

CURRENT PROVINCIAL INITIATIVES

Ontario

- Environment regulatory reform project 1996 - included proposal for "manufacturer controlled networks" to promote product stewardship
- RCO Recycling Roles and Responsibilities report submitted to Minister April 1998 - based on multi-stakeholder consultation - 5 funding options
- Minister call for voluntary industry contribution ($20m+)to municipal recycling including threat of regulation - October 1998

CURRENT PROVINCIAL INITIATIVES

Quebec

- Plan d'Action - Responsible and Sustainable Waste Management program - initiated 1996
- Consultation program - report supports producer responsibility approach
- Plan d'Action - September 1998 - industry to pay difference between landfill and recycling ($22m)
- Discussions underway with industry sectors

CURRENT PROVINCIAL INITIATIVES

Nova Scotia

- Solid Waste Management Strategy, Nov 1995 - industry stewardship programs for designated materials, landfill bans
- Establishment of Nova Scotia Resource Recovery Fund Board - to manage new waste/resource and stewardship regulations
- Beverage deposit/refund system 1996 - depots
- Stewardship/take back for used oil, tires, lead acid batteries

CURRENT PROVINCIAL INITIATIVES

New Brunswick

- Half back deposit in place for beverages
- Tire Stewardship Regulation 1996 - take back managed by industry board
- Draft regulation for waste oil
- Waste diversion discussion paper being prepared - some focus on stewardship/producer responsibility

CURRENT PROVINCIAL INITIATIVES

Newfoundland

- Multi Material Stewardship Board to manage beverage deposit system 1996
- Discussions being initiated with industry sectors for stewardship proposals

Prince Edward Island

- Refillable regulation for soft drinks and beer, deposit return wine and liquor
- Tire recovery tax, voluntary used oil take back

OECD EXTENDED PRODUCER RESPONSIBILITY (EPR)

- Response to growth of voluntary and mandatory producer responsibility schemes - more focus on "producer" than "shared product" responsibility
- Considerable program development in northern and central Europe - moving beyond packaging
- Work program reviewing legal/administrative, trade, economic/environmental effectiveness
- Series of workshops (first held Ottawa Dec 1997) leading to a Guidance Manual - complete fall '99

NEW DIRECTIONS: LINKAGES TO OTHER POLICIES

- Shift in thinking from "downstream"waste towards "upstream" design for the environment
- Stewardship/producer responsibility link with and support for other emerging environmental policies
  - eco efficiency
  - sustainable consumption and production
  - product policy
  - pollution prevention
  - environmental sustainability

WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT

- Innovations to extend product life, reuse and diversion from disposal are a means "*of progressively reducing ecological impacts and resource intensity throughout the life cycle to a level at least in line with the earth's estimated carrying capacity*"
- Eco efficiency objectives - minimize material/ energy intensity and toxic dispersion, enhance recyclability, maximize renewable resource use, extend durability, increase service intensity

ISSUES AND CHALLENGES

- Balancing regional flexibility with provincial and national harmony
- Linking and supporting stewardship/producer initiatives with other environmental objectives
- Monitoring and measuring performance
- Avoiding anti-competitive behaviour by stewardship/producer boards
- Avoiding "free riders", leveling the playing field
- Being aware of international trade rules

ISSUES AND CHALLENGES

- Anticipating employment impacts - upstream shifts, materials shifts
- Matching material capture with secondary materials markets
- Linking authority with responsibility
- Engaging consumers/generators - both residential and ICI

SUMMARY AND CONCLUSIONS

- Stewardship/producer responsibility will continue as a means of shifting costs from the taxpayer to the producer and consumer
- Increasingly seen as an alternative to regulation
- Provincial initiatives will continue to expand beyond packaging and hazardous wastes
- Proof of effectiveness/ "de-mystification" of approach as programs grow in Canada and in OECD

SUMMARY AND CONCLUSIONS

- Implementation approaches will become clearer as program experience grows
- Approach will increasingly be seen as means to drive pollution prevention, eco effiency, life cycle thinking, and sustainable development
- Lack of compatibility of provincial/regional approaches will cause problems for industry
- Markets will reward those industries/businesses which moved first to adopt eco efficiency and producer responsibility

PART I—AUTHORITY TO IMPOSE TAXES

Subpart A—Taxes Administered by Cities, Counties and School Districts

§ 1201. Taxes administered by cities of one million or more

Notwithstanding any other provisions of law to the contrary, but subject to the applicable limitations and exemptions in part II of this article, any city in this state having a population of one million or more, acting through its local legislative body, is hereby authorized and empowered to adopt and amend local laws imposing in any such city any or all of the types of taxes set forth in the following subdivisions of this section, such taxes to be administered and collected by the fiscal officers of such city in the manner provided for in subpart A of part III of this article:

Excerpts Follow:

(f) (1) Taxes on the sale of containers made in whole or in part of rigid or semi-rigid paperboard, fibre, glass, metal, plastic or any combination of such materials, including, but not limited to, barrels, baskets, bottles, boxes, cans, cartons, carrying cases, crates, cups, cylinders, drums, glasses, jars, jugs, pails, pots, rigid foil containers, trays, tubs, tubes, tumblers, and vessels, intended for use in packing or packaging any product intended for sale. Such taxes shall be levied upon the seller or supplier of the container who or which makes sales thereof to the person who purchases them (whether filled or unfilled) for the purpose of using them in connection with and as part of sales at retail or who receives them as containers of products intended for sale at retail. Where no tax has been paid by such seller or supplier, the buyer or person who purchases the container to use it or its contents in making a sale at retail shall be liable for tax thereon upon purchasing such container. Notwithstanding the provisions of section twelve hundred twenty of this article, sellers and suppliers having no business situs in the city imposing the tax, who sell such containers to retailers within the city may pay the tax so as to prevent its levy upon such retailers. Such taxes shall be imposed at rates not to exceed (i) three cents for each plastic bottle, (ii) two cents for each other plastic container, (iii) two cents for each glass container, (iv) two cents for each metal container except one cent for metal containers shown to be made of one metal only. Where a container is made of a combination of two or more of the materials with which this subdivision deals, it shall be classified and be taxable as if it were made of that of its component materials for which the following table provides the highest rate:

(2) Any local law enacted pursuant to this subdivision may provide that: (i) metal containers and paperboard or fibre containers which have been impregnated, lined or coated with plastic or other materials shall be considered to be classified and taxable as metal containers and paperboard containers, respectively; (ii) paperboard or fibre containers with fastenings, tops and/or bottoms made of other materials dealt with by this subdivision shall be classified and taxed as paperboard or fibre containers; (iii) paperboard, metal, or plastic caps that are easily, readily, usually, and customarily separated from the container before disposal shall not be considered part of the container; and (iv) notwithstanding any exception made pursuant to subparagraphs (i), (ii) and (iii) of this paragraph, where a preponderantly glass container is made of a combination of taxable materials, the complete separation of which materials is not easily, readily, usually and customarily effected after use and before disposal, such container shall be taxed one cent in addition to the tax otherwise imposed upon it, but in no event shall the aggregate tax on such container exceed three cents.

(3) Any local law enacted pursuant to this subdivision may provide that containers sold or furnished containing products intended for use in manufacturing processes and not for final retail sale shall be exempt from such taxes.

(4) Local laws imposing taxes authorized by this subdivision shall provide for the allowance of credits against such taxes as follows:

(i) one cent for each taxable container if manufactured with the following minimum percentages of recycled material:

(A) Paperboard and fibre containers: eighty per cent, if made of boxboard; thirty per cent if made of foodboard, fibre or containerboard.

(B) Metal containers: thirty per cent if taxed during the period beginning July first, nineteen hundred seventy-one and ending June thirtieth, nineteen hundred seventy-two; and forty percent, if taxed thereafter.

(C) Glass containers: twenty per cent if taxed during the period beginning July first, nineteen hundred seventy-one and ending June thirtieth, nineteen hundred seventy-two; and thirty per cent, if taxed thereafter.

(D) Plastic containers: thirty per cent.

(ii) one cent for each container of a clearly distinct type, class, pattern or form taxed during any taxable period provided that sixty per cent or more of all the containers of such distinct type, class, pattern or form subject to tax during such period were reused containers.

(iii) Provided that the credits for each container during any taxable period shall not exceed the amount of taxes due on such container for such period.

(5) The fiscal officer of any such city in charge of the administration of any tax imposed pursuant to this subdivision, may be authorized by any local law enacted pursuant to this subdivision, to prescribe by regulation, upon the joint recommendation of the chief officer in charge of the department or agency of such city dealing with the interests of consumers and the chief officer in charge of the department or agency of such city charged with the duty of waste collection and disposal:

(i) additional exemptions from and credits against the tax imposed by such local law; and

(ii) an additional surtax of no more than one cent per container, to be imposed upon containers made of any of the taxable components dealt with by this subdivision or any combination thereof.

In granting such exemption or credit or providing for such additional surtax, the above mentioned officers shall take into consideration the following qualities and characteristics of the container in question:

(A) the difficulty the container's material poses to the process of making recycled material.

(B) the difficulty of its manufacture from recycled materials.

(C) the difficulty and relative cost of its disposal.

(D) any obstacle it poses to consumer protection.

(E) the degree to which the container can or cannot be reused.

(F) the slowness, difficulty, and incompleteness with which the container degrades in the natural environment, either chemically or biologically.

Any such exemption, credit or surtax may be revoked by joint action of such officers, or by local law.

(6) There shall be exempted from any tax imposed pursuant to the authority of this subdivision, containers used as receptacles for food, food products, beverages, dietary foods and health supplements, sold for human consumption but not including (i) candy and confectionery, (ii) fruit drinks with[3] contain less than seventy per cent of natural fruit juice, (iii) soft drinks, sodas and beverages such as are ordinarily dispensed at soda fountains or in connection therewith (other than coffee, tea and cocoa) and (iv) beer, wine or other alcoholic beverages.

(7) When used in this subdivision the words (i) "recycled material" mean component materials which have been derived from previously used material or from new or old scrap material, (ii) "retail sale" or "sale at retail" means a sale to any person for any purpose other than for resale as such or as a physical component part of tangible personal property, (iii) "taxable period" means each calendar month or such other periods as the official administering any tax enacted pursuant to this subdivision may provide for by regulation, (iv) "one metal only" means metal with such minimum amounts of alloys as the officer charged with the administration of any local law enacted pursuant to this subdivision shall provide by regulation, but shall not include metal which has been plated or lined with another metal. In formulating such regulations such officer shall consult with the chief officer in charge of the department or agency of such city dealing with the interests of consumers and the chief officer in charge of the department or agency of such city charged with the duty of waste collection and disposal and shall consider the difficulty of using the metal in the making of recycled material and the availability of or technical feasibility of manufacturing other metals for the same purpose and use as the metal in question but with a lower alloy content.

APPENDIX H

US Conference of Mayors Resolution on Shared Responsibility

USCM RESOLUTION
ADOPTED IN PORTLAND, OR
JUNE 1994

SHARED RESPONSIBILITY FOR WASTE REDUCTION

WHEREAS, America's cities and local governments now bear the enormous financial burden to recycle huge amounts of waste produced by American consumers and producers; and

WHEREAS, cities must also spend billions of dollars annually to dispose of non-recycled trash through landfilling and combustion; and

WHEREAS, incentives to reduce waste and recycle a variety of packages may foster the development of new technologies, create jobs, and result in the emergence of entire new industries, thus bringing economic benefits to our communities; and

WHEREAS, many Western industrialized nations have established systems of manufacturer's responsibility which 1) require companies to take back and reuse, or recycle, large containers in which products are shipped, 2) provide shoppers the opportunity to leave excess packaging at stores, where manufacturers can collect them for recycling, or 3) provide for the private sector to create privately-funded consortia to directly recycle and manage waste, or to reimburse local governments for their cost in doing so; and

WHEREAS, the Canadian provinces are currently developing in cooperation with the Canadian consumer products industry a system of "shared responsibility" which would reimburse local governments for the added cost of recycling, and many Asian countries have begun to explore the same; and

WHEREAS, dozens of American companies are already participating successfully in these various manufacturer responsibility systems implemented in other countries; and

WHEREAS, the American consumer products industry -- including manufacturers, distributors, shippers and retailers -- has significantly increased its cooperation with local governments in the promotion of recycling programs, source reduction efforts, and consumer education; and has made significant strides in its own operations to reduce, reuse and recycle, with more progress expected; and

WHEREAS, an American style manufacturer's responsibility system could make local funds now spent on solid waste management available for higher priorities such as public safety, crime prevention, education, homelessness, and employment and training,

NOW, THEREFORE, BE IT RESOLVED that The U.S. Conference of Mayors calls on the Administration and the Congress to study the development of a U.S. manufacturer's responsibility system that would be tailored to the uniqueness of the U.S. solid waste management system and industry; and

BE IT FURTHER RESOLVED that The U.S. Conference of Mayors directs its Solid Waste Task Force and its affiliate, The Municipal Waste Management Association, to begin discussions with industry trade associations to explore the joint and cooperative development of an American manufacturer's responsibility system; and

BE IT FURTHER RESOLVED that such discussions explore ways to encourage the consumer to reduce waste through their purchasing practices; and

BE IT FURTHER RESOLVED that The U.S. Conference of Mayors continue to consult Western industrialized nations to monitor and evaluate the implementation of their various "manufacturer responsibility" systems; and

BE IT FURTHER RESOLVED that The U.S. Conference of Mayors supports proposals that provide financial incentives for consumers and manufacturers to reduce the amount of packaging and the use of virgin materials in products, and to recycle more packaging and products without adding financial burdens on local governments.

APPENDIX I
Packaging Waste Management in Germany

Dr. Ulf D. Jaeckel
(Federal Ministry for the Environment, Germany)

Packaging Waste Management in Germany - Key Elements

Roundtable 'Packaging Waste', New York, November 6th, 1998

1. EPR as an instrument for Environmental Policy in Germany

The politics of Extended Producer Responsibility are one cornerstone of the closed loop economy we are trying to reach. The aim is to increase resource productivity which shall be going along with the reduction of pollution and of waste production.

The starting point, the prototype and the model example for the "new product responsibility" and the start of an economy based on product recycling in Germany was the Packaging Ordinance of 12 June 1991. When we are talking about policy experience with EPR in Germany, this Ordinance is the most important measure in the waste management field.

2. EPR System of the Packaging Ordinance

2.1 The Principle

In the meantime the Ordinance has been revised and the new Packaging Ordinance has entered into force in august 1998. One of the aims of the amended Ordinance is to create a balance between those who participate in a dual system and those who want to organise the return and recycling of their packaging themselves. Now there are recycling quotas for the latter. This shall solve the free-rider problem. Also, the amended Ordinance is to encourage competition in the field of waste management to reduce costs. The new Packaging Ordinance therefore does not contain any substantive changes to the overall approach.

The Ordinance contains the main following individual stipulations:

- Manufacturers and distributors have to take back packaging and arrange for their reuse or substance recycling (basic principle for all packaging)
- Manufacturers and distributors of sales packaging have the choice between organising take and recycling by themselves or to join a take back system which operates all over Germany and near private households
- consumers are able to leave secondary packaging behind in the shops. Distributors have to arrange for this so-called secondary packaging to be reused or recycled.

Trade and industry was given the option of organising collection systems - independently of municipal waste disposal - which operate in the direct vicinity of the consumers themselves. This possibility was provided by the option of a so-called dual system. It was called dual because it is a scheme which operates side-by-side with traditional waste disposal provided by the local authorities.

Trade and industry seized this opportunity and established the Duales System Deutschland (DSD) GmbH. The Packaging Ordinance provides specific quotas for collection, sorting and recycling for a scheme such as this. These quotas were changed a little bit in the amended Packaging Ordinance. From 1999 on the obligations are that in the fields of plastics , aluminium and compounds 60%, in the fields of tinplate, paper/cardboard 70%, and in the field of glass 75% of the used sales packaging which is brought into the system has to be recycled. If these requirements are not met, the licence for this private enterprise collection system is revoked. Companies which have not joined a dual system have to take back the packaging by themselves and meet the same recycling quotas as dual systems.

The costs which are met by DSD play an important role concerning the control of material flows. These costs are divided amongst the participants of the dual system. Therefore, licence fees are charged by DSD dependent on the kind of material and on weight (with an additional fee per item). The licence fee range from 0.15 DM/kg for glass packaging to 2.95 DM/kg for plastics. The fees will be an equivalent to the actual costs for collecting, sorting and recycling(/disposal). With these licence fees some external costs can be internalised.

2.2 **Benefits**

Nearly seven years after the entry into force of the Packaging Ordinance this policy has proved successful in several fields:

- Manufacturers have changed their packaging habits. Environmentally friendly disposal of packaging is a factor which is indeed taken into account during the production process and is also increasingly used as an advertising argument in competition;

- Due to the differences in the licence fees for different materials and the fees themselves, changes in the packaging market can be seen. Packaging have become lighter and smaller. Some packaging with proportional higher licence fees (i.e. plastics, glass) have been replaced by packaging with lower fees (i.e. cardboard). Useless packaging have disappeared.

- As a result, the use of packaging has been considerably reduced in Germany. In 1997 there were 1.7 million tons less packaging p. a. than in 1991, the year the Packaging Ordinance entered into force (figure 1);

- In the field of transport packaging we are witnessing a trend towards reusable packaging. Examples here are packaging for furniture, food, pharmaceutical products and bicycles;

- Industry has set up a nationwide collection system for throw-away packaging and has increased its recycling capacities for all packaging material. In 1997 5.45 million tons of used packaging were recycled and recycling quotas from64% of plastics to 87% of paper and cardboard (as seen in figure 2) were reached.

2.3 **Problems**

Nevertheless, there were a number of initial hurdles to overcome. Initially, a critical situation arose in the field of substance recycling of plastic packaging. Due to the collection zeal of the public, which was very much welcomed, the quantities collected were greater than the recycling capacities available. However, the situation is different now. New technologies emerged in areas where deficits were observed. In 1990 we had a recycling capacity of 20,000 tonnes. This capacity had increased to over 500,000 tons by 1998. Due to the Packaging Directive most of the packaging material collected will be recycled in Germany. The much criticised exports to far-away countries will be stopped. That's also a sort of control of materials but criticised under aspects of liberty of trade.

Talking about experience, it's also necessary to mention some problems for the Duales System Deutschland GmbH. The initial phase has shown that there were some serious financial problems to be solved. The causes of the financial difficulties include:

- "Free riders", that are firms which, although they imprint the green dot on their packaging as a sign that they are members of the system, pay for far less packaging than they actually produce and than the system has to dispose of.

- Very often the public also disposes of non-packaging substances via the dual system. The figure here averages 20%, a fact which also contributes towards higher costs for which the system does not obtain any financial recompense. Given these problems, trade, the packaging industry and the disposal systems together have joined with a considerable number of local authorities to take measures to stabilise the dual system. Nowadays the situation seems to be stable and consolidation is progressing.

3. Lessons we learned so far

The experience especially of the Packaging Ordinance and also with some other different approaches has shown as a lot of general results concerning the creation, the preparation and the implementation of EPR-systems. In the following the main key elements to EPR are listed in 10 thesis:

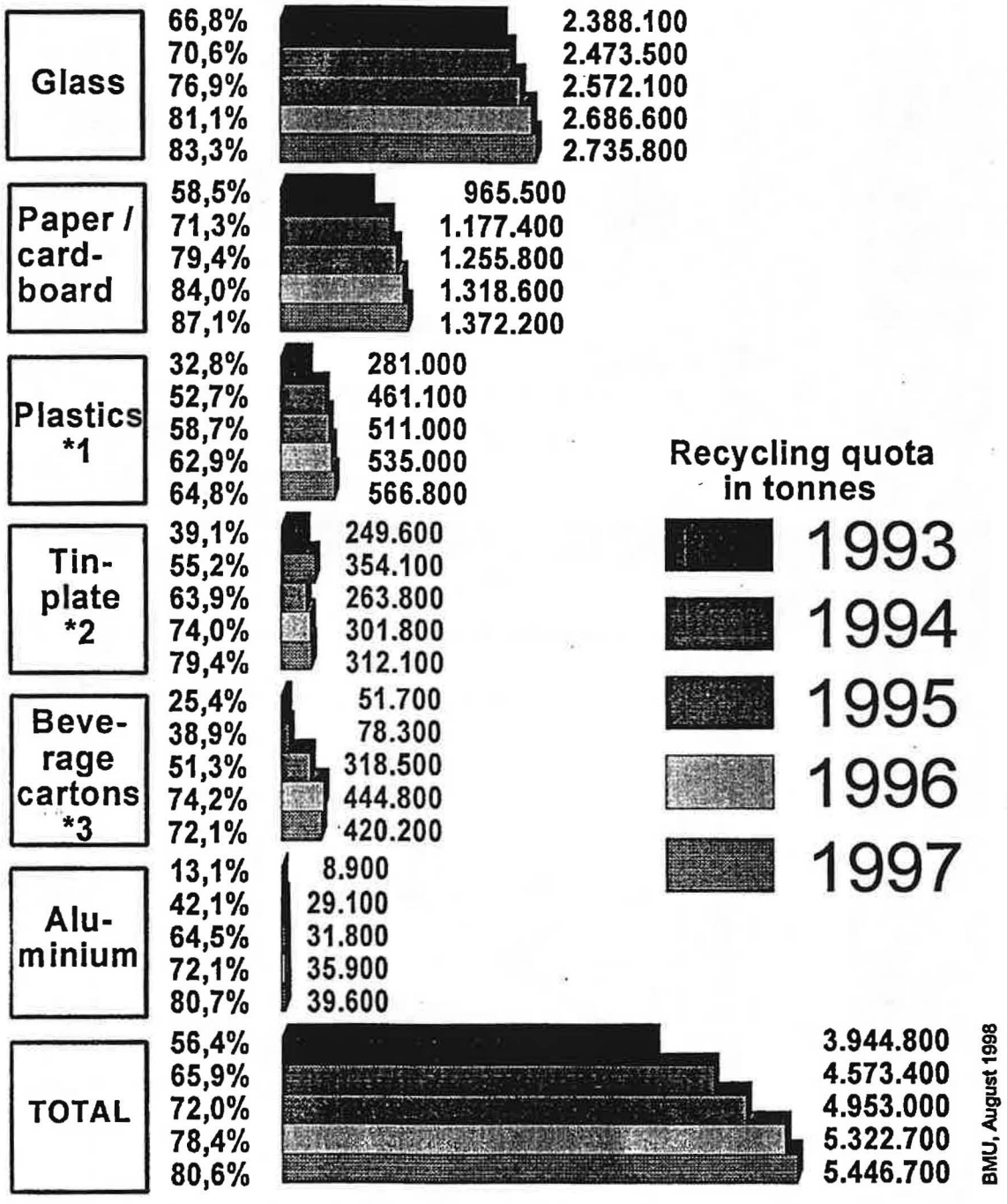
1. **Clear targets**
   Governments have to set clear targets which are transparent enough and can be accepted by all the relevant social groups including industry, consumers, environmentalists and so on.
2. **Clear addressing of responsibilities**
   It must be made clear, who is responsible for the used product which has become waste. The German experience shows there shall be one part of the product chain who carries the main responsibility, who is responsible for meeting the goals. The best results can be seen when this is the part with the greatest influence on product specifications.
3. **Situation related approach**
   EPR systems may vary between „pure" voluntary commitments and strong regulations by laws depending on different products, different market structure, different targets, prizes of secondary material and so on. E.g. there are distinctions necessary especially between short and long life products and between waste occurring in the industry or the private household sector. Obligations inside the industry sector can be reduced to a framework (i.e. monitoring of waste transport and recycling/incineration/landfill) especially if there are

market incentives like positive value of secondary material or high costs of landfill/incineration.

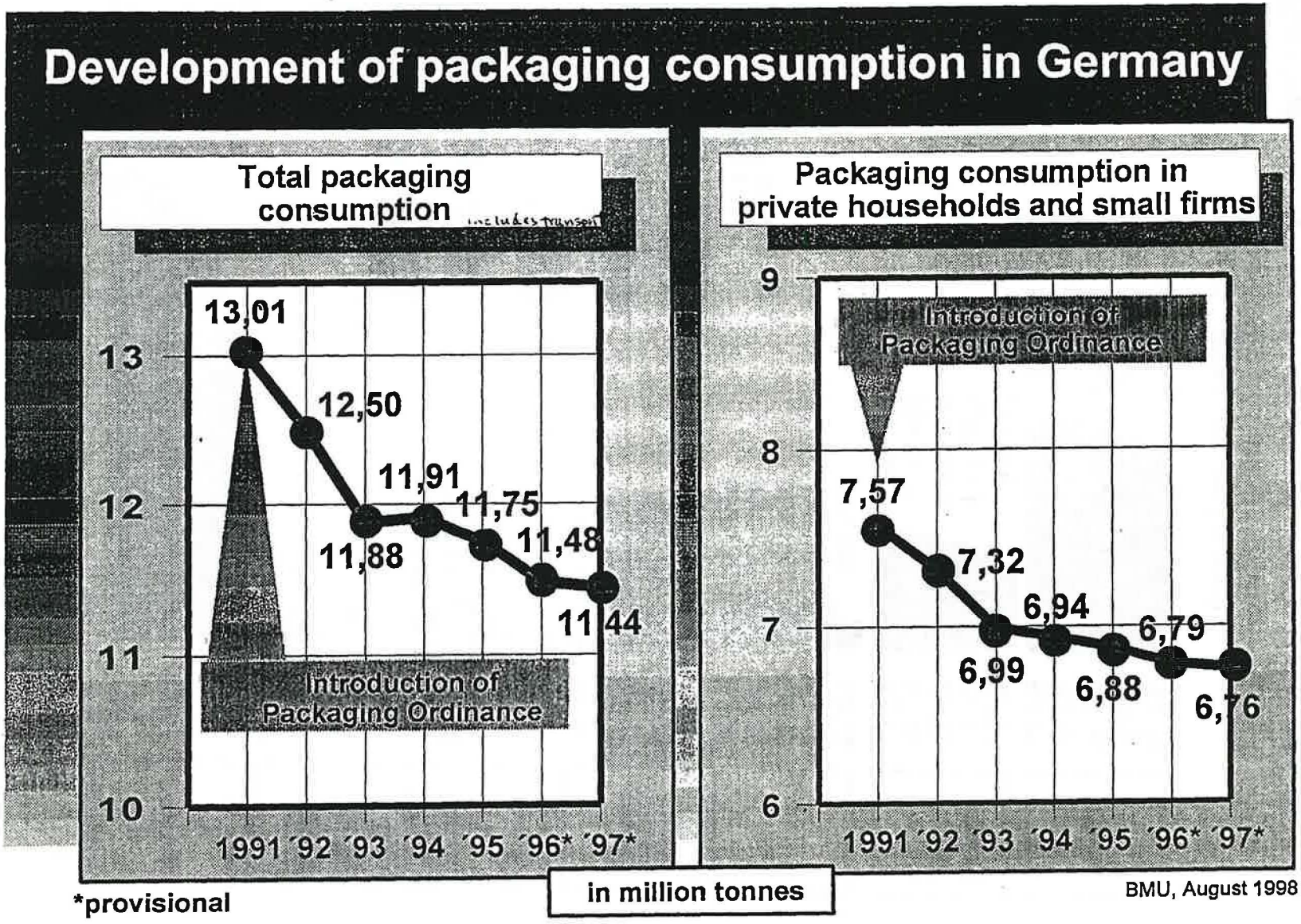
4. **Financial incentives**
   If there is a cost internalisation of waste management costs there are clear incentives given to change product design. There is not a fixed instrument for the internalisation but it should work along the polluter pays principle with the polluter as the one in the product chain who has the biggest influence on product design.
5. **Neutral to competition**
   Framework of the EPR-scheme should be designed to be neutral to competition as far as possible. Obligations should be addressed to all competitors and there should be no room for free riders. There can be different cost situations because of cost internalisation but there should not be a possibility to get rid of the duties.
6. **Differentiation between materials**
   Differentiation according to the polluter pays principle will cause welcomed changes. Incentives have to be given to change product design and material. Internalisation of waste management costs shall allow different solutions for the obliged. The different licence fees of the German Dual System has lead to changes from waste management cost intensive materials like plastics to less costly materials like paper.
7. **Encouraging competition in the waste management sector**
   This is necessary to control costs. A lack of competition in that field will lead to higher costs. The same effect will occur when there are unrealistic targets (i.e. recycling quotas) in the beginning. The ones who has to meet very high unrealistic obligations are in a bad position in the negotiations with waste management industry which offers solutions.
8. **Consumer participation**
   EPR-schemes for waste occurring at private households (i.e. packaging, batteries) strongly depending on participation of consumers. Therefore environmental awareness (long time process) and easy access to collecting and recycling systems (i.e. kerbside collection) are necessary. There shouldn't be hurdles for the consumer to participate. Bring back obligations for consumers should only be chosen when there are urgent environmental problems i.e. through hazardous waste like batteries.
9. **Use of LCA**
   The use of LCA will increase acceptance and environmental benefits along the product chain. The use of LCA can lead to an environmental optimisation of products. Obligations should take this into account and government should react on LCA results.
10. **Monitoring**
    Monitoring is the key to the benefits. If there is no pressure to meet targets by monitoring things will run smoothly but without the wanted results. The experience in Germany is that if there often is a lack of control there often is a lack of results This has happened especially when there are „pure" voluntary commitments (like in the fields of scrap cars and building rubble).

Recycling Quotas for used packaging

Recycling figures achieved by
Dual System in 1993 - 1997



*1 incl. plastic / plastic composites
*2 from 1995 without beverage cans with aluminium cap
*3 1993 + 1994 only beverage cartons composites;
from 1995 including beverage cans of tinplate / aluminium


Development of packaging consumption in Germany
Total packaging consumption
Packaging consumption in private households and small firms
13,01
12,50
11,91
11,75
11,48
11,88
11,44
Introduction of Packaging Ordinance
7,57
7,32
6,94
6,79
6,99
6,88
6,76
13
12
11
10
9
8
7
6
1991 '92 '93 '94 '95 '96* '97*
*provisional
in million tonnes
BMU, August 1998

APPENDIX J
Manufacturers' Responsibility for Packaging Wastes

MANUFACTURERS' RESPONSIBILITY FOR PACKAGING WASTES

European approach: piecemeal, costly in environmental and economic terms, muddles two separate issues:

- **the need to design good packaging systems that get goods from point of production to point of consumption with the minimum expenditure of energy and materials; and**
- **the need to invest in modern waste management techniques to reduce the environmental impact of all wastes, including used packaging.**

European Packaging & Packaging Waste Directive: narrow focus on solid waste and recycling; takes no account of transport, energy use, consumer needs, demographics, wastage of the contents.

UK interpretation of Packaging Directive: complex system with obligation to meet recovery targets attributed at company level, 12 compliance schemes at present. Evidence of meeting recovery targets is by providing a Packaging Recovery Note obtained either directly from a reprocessor or by a compliance scheme on a company's behalf.

Governments' Agenda: move public sector expenditure to private sector; why packaging?, newsprint is single most homogenous material in household waste stream; who should pay for waste collection and disposal?, municipal waste management systems operate primarily for public health reasons - this should remain top priority.

Lessons learned: commercial & environmental drivers work to reduce packaging; waste analysis shows packaging quantities by weight stable or declining; cannot compare recycling rates because regions have different definitions, different waste management systems; quantity of packaging on market depends on number of goods and demographics - need to tackle overall consumption to reduce waste; packaging from household waste typically occupies 3% by weight or volume of a Northern European landfill site.

Shared Responsibility: manufacturers - design packaging to make rational use of resources throughout distribution chain and be safe to handle in any modern recovery or waste treatment process; consumers - choose goods wisely, dispose of waste thoughtfully.

Way Forward: identify environmental objective (reduce emissions of global climate change gases?); set Integrated Pollution Prevention Control standards but leave method of achieving them to local decision makers; focus recycling on easy items to keep environmental/economic costs down, give public confidence in all well managed waste treatment processes; manufacturers use Codes of Good Practice eg UK Responsible Packaging Code; Trade Associations broker packaging minimisation agreements eg all computer games manufacturers agree to move to smaller packs; give public clear guidance on reducing environmental impact of their actions eg Green Kitchen; recipes for a better planet.

Jane Bickerstaffe, 20 October 1998

The Industry Council for Packaging and the Environment
Tenterden House, 3 Tenterden Street, London W1R 9AH
Tel 0171 409 0949 Fax 0171 409 0161 email: j.bickerstaffe@dial.pipex.com